2020

Measuring the shadows: Chronic feelings of emptiness in borderline personality disorder

Caitlin E. Miller

Measuring the shadows: Chronic feelings of emptiness in borderline personality disorder

A thesis submitted in partial fulfilment of the requirements for the award of the degree

DOCTOR OF PHILOSOPHY (CLINICAL PSYCHOLOGY)

From the University of Wollongong

Caitlin E. Miller

Supervisors: Senior Professor Brin Grenyer and Dr. Michelle Townsend

This research has been conducted with the support of a scholarship awarded by Project Air Strategy for Personality Disorders and University of Wollongong School of Psychology

University of Wollongong

School of Psychology

November 2020

Certification

I, Caitlin E. Miller, declare that this thesis, submitted in partial fulfilment of the requirements for the award of Doctor of Philosophy (Clinical Psychology), in the School of Psychology, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualifications at any other academic institution.

Caitlin E. Miller

11th November 2020

Abstract

Chronic feelings of emptiness is a symptom of Borderline Personality Disorder (BPD) which has not undergone rigorous examination, despite theoretical and empirical indications supporting its significance. This thesis comprises three studies which explore the importance, influence, and nature of chronic feelings of emptiness for people with BPD. Study One investigated previous work on the importance of chronic feelings of emptiness using a PRISMA guided systematic review. Findings from 99 empirical studies indicated a difficulty defining and quantifying chronic emptiness. It was proposed that chronic emptiness may be conceptualised as a sense of disconnection from both self and others. Emptiness appeared to have a chronic course with low remission, and was associated with distress (i.e., impulsivity, self-harm, suicide) and dysfunction (i.e., reduced social and vocational function). Chronic feelings of emptiness were found to be distinct from hopelessness, loneliness and intolerance of aloneness, and may be related to a unique 'borderline depression'. Study Two investigated longitudinally 199 individuals presenting for treatment of BPD. Severity of chronic emptiness at intake was associated with impaired vocational ability at twelve-month follow-up, mediated by severity of impulsivity and frequency of self-harm. These findings suggest that chronic emptiness may underlie more acute and impulsive behaviours for people with BPD resulting in difficulties engaging meaningfully in psychosocial pursuits. Study Three qualitatively analysed the verbal accounts of 15 participants to understand the nature of chronic emptiness for people with a lived experience of BPD. Chronic feelings of emptiness were experienced as a sense of numbness and nothingness representing a feeling of disconnection with self and others

which resulted in feelings of unfulfillment and purposelessness. Participants largely experienced chronic feelings of emptiness as distressing, and some engaged in adaptive strategies such as behavioural activation and distraction to delay or tolerate feelings of emptiness, while participants who had not previously reflected on the experience tended to engage in more maladaptive, impulsive behaviours. Most participants indicated chronic feelings of emptiness was distinct from depression, loneliness, hopelessness and dissociation. This thesis highlights the importance, influence and nature of chronic emptiness in BPD, particularly in relation to distress and dysfunction.

Acknowledgments

I have been so privileged in the support I've received throughout this PhD, and the few words that follow will attempt to capture the depth of gratitude I feel.

I must firstly express gratitude to my supervisors Professor Brin Grenyer and Dr Michelle Townsend. Brin, thank you for your generosity, your wealth of knowledge and for fostering my skills as a researcher. Thank you for providing so many opportunities to learn from yourself and other experts, and for your continued support of this research and myself over the years. Michelle, thank you for your unwavering support and faith in my skills and capacity, your tireless guidance and effort, and for your enviable ability to hold both the fine details and the wide scope of this research in mind simultaneously. Above and beyond this, thank you for your support, kindness and mentorship over the last four years. Your impact as an inspirational role model will last long after this research is complete.

The relationships I have made along the way in this PhD have made the last four years some of my most enjoyable. I am lucky enough to be surrounded by peers who support, inspire and challenge me and who – perhaps most importantly – are always ready for a coffee. To Sophie, Josie, Alix, Saniya, Jane, Meagan, Bella and Bree – thank you for celebrating and commiserating with me over the last four years. A particular thank you to Josie for your consistent support, cheerleading, skilful proofreading and pedantic attitude towards the Oxford comma. A further thank you to my friends outside the University world; Billie– thank you for your resolute belief in my abilities and for your unconditional support; Zoe – thank you for showing me the green grass on the other side of a PhD, and always encouraging me forward.

My colleagues in the Project Air lab have continually fostered a passion for research and reminded me of the importance of this work when I was caught up in the minutiae of completing a PhD. Thank you in particular to Liz, Kate, Fiona, Nick, and Emily.

To my partner Michael who joined in once the rollercoaster had already begun. How brave you are! Thank you for your practical and emotional support over the last two years. Thank you for your steadfast encouragement and validation, and for always instilling hope that I can finish this thesis.

Without the support of my family this thesis would not be complete. Thank you, David Patten, for your thorough review of this thesis. Chris, thank you for helping me keep my feet firmly planted on the ground by telling me it's harder to catch a Marlin than finish a PhD (I'm still dubious), and for reminding me to always remain curious. Mum and Dad, thank you for fostering a love of learning and a thirst for knowledge, for always listening, for cheering me on when I needed encouragement and for helping to problem-solve when I was stuck. More than that, thank you for showing me the importance of courage, perseverance and resilience. Because of you, I know how to continue showing up every day and trying my best with what I've got, and how to reach out for help when I need it.

I acknowledge funding and support from Project Air Strategy for Personality Disorders, University of Wollongong School of Psychology and New South Wales Ministry of Health. Finally, I would like to acknowledge the participants who made this research possible. It is your experiences which have given this PhD meaning and purpose. Thank you for trusting me with your stories, it has been an honour.

Formatting statement

This thesis has been prepared in journal article compilation style format, with each manuscript written for a specific journal and target audience. All manuscripts have been re-formatted to a single style for the purpose of this thesis using American Psychological Association (APA) 7th Style.

Chapter One presents an introduction to the thesis and an overview of chronic emptiness in BPD. It describes the objectives and significance of this research.

Chapter Two presents a systematic review of the current literature regarding chronic emptiness in BPD. Chapter Two has been peer-reviewed and published in *PLOS ONE*.

Chapter Three presents a longitudinal examination of the relationship between chronic emptiness, self-harm, impulsivity and role function for people with BPD. Chapter Three has been peer-reviewed and published in *Personality and Mental Health.*

Chapter Four presents a qualitative analysis of the experience of chronic emptiness for people with BPD. Chapter Four has been accepted for publication in *Borderline Personality Disorder and Emotion Dysregulation.*

Chapter Five provides a discussion on the findings from the thesis, outlining clinical implications, strengths and limitations of the research, and directions for future research.

Statement of Contribution of Others

This statement of authorship identifies the nature and extent of contribution of the PhD candidate and all co-authors for chapters based on journal articles. The contributions follow the CRediT taxonomy of roles for authors.

Chapter Two: Study One

Authors: C. E. Miller, M. L. Townsend, N. J. S. Day, B. F. S. Grenyer

Author	Contributions
CEM	Conceptualisation Methodology Investigation Formal analysis Writing – Original draft Writing – Reviewing and editing
MLT	Conceptualisation Formal Analysis Validation Writing – Reviewing and editing Supervision
NJSD	Formal analysis Validation Writing – Reviewing and editing
BFSG	Conceptualisation Writing – Reviewing and editing Supervision

Chapter Three: Study Two

Authors: C. E. Miller, K. L. Lewis, E. Huxley, M. L. Townsend, B. F. S. Grenyer

Author	Contributions
CEM	Conceptualisation Methodology Investigation Data Curation Formal Analysis Writing – Original draft Writing – Reviewing and editing
KLL	Methodology Investigation Data Curation Formal Analysis Writing – Review and editing
EH	Formal Analysis Writing – Review and editing
MLT	Data Curation Formal Analysis Writing – Review and editing Supervision
BFSG	Conceptualisation Methodology Resources Formal Analysis Writing – Review and editing Supervision

Chapter Four: Study Three

Authors: C. E. Miller, M. L. Townsend, B. F. S. Grenyer

Author	Contributions
CEM	Conceptualisation Methodology Investigation Data curation Formal analysis Writing – original draft Writing – reviewing and editing
MLT	Conceptualisation Methodology Formal Analysis

	Validation Writing – reviewing and editing Supervision
BFSG	Conceptualisation Methodology Resources Writing – reviewing and editing Supervision

Caitlin E. Miller | Michelle L. Townsend | Nicholas J. S. Day

Kate L. Lewis | Elizabeth Huxley | Brin F. S. Grenyer

Table of Contents

List of Tables

List of Figures

List of Names or Abbreviations

AMPD	Alternative DSM-5 Model for Personality Disorders
APA	American Psychiatric Association
BDI-II	Beck Depression Inventory – Second Edition
BPD	Borderline Personality Disorder
DBT	Dialectical Behaviour Therapy
DIB-R	Revised Diagnostic Interview for Borderlines
DSM-5	Diagnostic and Statistical Manual for Mental Disorders – Fifth Edition
DSM-III	Diagnostic and Statistical Manual for Mental Disorders – Third Edition
GAF	Global Assessment of Functioning
MBT	Mentalisation Based Treatment
MCAR	Missing Completely at Random
MDD	Major Depressive Disorder
MMAT	Mixed Methods Appraisal Tool
MSI-BPD	McLean Screening Instrument for Borderline Personality Disorder
NSSI	Non-Suicidal Self-Injury
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
PROSPERO	International Prospective Register of Systematic Reviews
SCID-II	Structured Clinical Interview for DSM-5
SES	Subjective Emptiness Scale
SOFAS	Social and Occupational Functioning Assessment Scale
ST	Schema Therapy
TFP	Transference-Focused Therapy
WHO-DAS 2.0	World Health Organization Disability Assessment Schedule 2.0

List of Publications and Presentations

Publications

Miller, C. E., Townsend, M. L., Day, N. J. S., & Grenyer, B. F. S. (2020). Measuring the shadows: A systematic review of chronic emptiness in borderline personality disorder. *PLOS ONE, 15*(7): e0233970. doi: 10.1371/journal.pone.0233970.

Miller, C. E., Lewis, K. L., Huxley, E., Townsend, M. L., & Grenyer, B. F. S. (2018). A 1-year follow-up study of capacity to love and work: What components of borderline personality disorder most impair interpersonal and vocational functioning? *Personality and Mental Health, 12*(4), 334-344. doi: 10.1002/pmh.1432.

Miller, C. E., Townsend, M. L., & Grenyer, B. F. S. (In press). Understanding chronic feelings of emptiness in borderline personality disorder: A qualitative study. *Borderline Personality Disorder and Emotion Dysregulation*, accepted 15th July 2021.

Presentations

Miller, C. E., Lewis, K. L., Huxley, E., Townsend, M. L., & Grenyer, B. F. S. (2018). *A one-year follow-up study of capacity to love and work: What components of borderline personality disorder most impair interpersonal and vocational functioning?* Poster presented at the 5th International Congress on Borderline Personality Disorder and Allied Disorders, Sitges, Spain.

1. Introduction and Aims

1.1 Preamble

The following introductory chapter provides an overview of Borderline Personality Disorder (BPD), with a particular focus on chronic feelings of emptiness in BPD. It begins by presenting a summary of current research regarding BPD, and the distress and dysfunction associated with BPD. The chapter then focuses on chronic emptiness in BPD, beginning with an acknowledgement of the limited research in the area and moving to a discussion of theoretical conceptualisations of chronic emptiness. This is followed by an exploration of the current empirical findings in the area, leading to an acknowledgment of the need for research in this area and an outline of the thesis aims.

1.2 Borderline Personality Disorder

BPD is a mental health disorder characterised by distress and dysfunction across self and interpersonal spheres (American Psychiatric Association, 2013). Population rates for BPD in the community are estimated to be between 1.3 – 5.9% (Skodol et al., 2019; Tomko et al., 2014). However, individuals with BPD may account for up to 20% of outpatient mental health services (Gunderson et al., 2011), 20.5% of emergency services and 26.6% of hospital inpatients (Lewis et al., 2019).

Current theories of BPD development purport a lifespan approach involving a transaction between environmental and biological factors which play out in a range of heterotypic pathways (Crowell et al., 2009; Videler et al., 2019; Winsper et al., 2017). The lifespan approach of BPD shows evidence of peak prevalence of BPD symptoms in early adulthood, followed by a decline in symptoms throughout the lifespan. BPD typically has onset between adolescence and early adulthood, and the provision of diagnosis and early intervention treatment for young people under 18 years is

increasingly recognised as important (Chanen, 2015; Kaess et al., 2014). Biological factors can include familial risk, prenatal exposure, impulsivity and emotional vulnerability. There is evidence for moderate heritability of BPD, with twin studies typically showing an estimated heritability of 40% (Amad et al., 2014; Distel et al., 2008; Leichsenring et al., 2011). An individual's biological vulnerabilities are potentiated by environmental factors, which consist of social, familial and individual factors including low socio-economic status, adverse childhood experiences, family psychopathology, invalidating responses from caregivers and insufficient co-regulation and social communication (Stepp et al., 2016; Winsper et al., 2017). Inconsistent regulation of emotion and invalidation from important caregivers in early childhood may result in the disruption of frontolimbic development, contributing to an inability to self-regulate emotional experiences, behavioural dysregulation (i.e., both internalising and externalising difficulties) and an insecure attachment style (Eyden et al., 2016; Hughes et al., 2012; Winsper et al., 2020b). The interaction of these elements appears to lead to a series of emotional cascades during adolescence including broad difficulties in emotion regulation, impulsivity and social cognition and specific difficulties with epistemic trust and mentalisation, which over time, result in the expression of maladaptive personality traits that represent BPD (Fonagy et al., 2017; Kaess et al., 2014; Winsper, 2018). In turn, these traits have a negative effect on an individual's interpersonal and intrapersonal environment, which inadvertently perpetuates difficulties with emotion regulation and social cognition (Crowell et al., 2009; Winsper, 2018).

1.2.1 Diagnosis of BPD

According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth edition (DSM-5), personality disorders are a set of maladaptive and enduring patterns of cognition, affect, relational function and impulse control (American Psychiatric Association, 2013). These patterns are inflexible, typically stable over time, present across a range of contexts and markedly different from cultural expectations. The experience of these patterns results in both distress and impairment for individuals with personality disorder. The DSM-5 regards BPD as a set of symptoms representative of underlying instability in interpersonal relationships, self-identity and mood. There are nine specific criteria of BPD classified by the DSM-5, as outlined in Table 1.1.

Table 1.1
DSM-5 Borderline Personality Disorder: Diagnostic Criteria

1. Frantic efforts to avoid real or imagined abandonment
2. A pattern of unstable and intense interpersonal relationships characterised by alternating between extremes of idealisation and devaluation
3. Identity disturbance: Markedly and persistently unstable self-image or sense of self
4. Impulsivity in at least two areas that are potentially self-damaging (e.g., spending, sex, substance abuse, reckless driving, binge eating)
5. Recurrent suicidal behaviour, gestures, or threats, or self-mutilating behaviour
6. Affective instability due to a marked reactivity of mood (e.g., intense episodic dysphoria, irritability, or anxiety usually lasting a few hours and only rarely more than a few days)
7. Chronic feelings of emptiness
8. Inappropriate, intense anger or difficulty controlling anger (e.g., frequent displays of temper, constant anger, recurrent physical fights)
9. Transient, stress-related paranoid ideation or severe dissociative symptoms

(American Psychiatric Association, 2013)

To meet threshold for a diagnosis of BPD according to the DSM-5, an individual must endorse at least five out of the nine criteria (American Psychiatric Association, 2013). While the categorical approach of the DSM-5 is useful for

identifying symptoms of BPD and can be used by both clinicians and researchers, there are limitations to this method of diagnosis. This includes significant levels of heterogeneity (i.e., a possible 256 combinations of symptoms to meet criteria for BPD (Lewis et al., 2012)) and co-morbidity with other mental health disorders, and arbitrary thresholds for diagnosis based on original rather than current criteria (Skodol et al., 2002b; Widiger & Trull, 2007). Recognition of these limitations led to the development of a dimensional model of diagnosis – the Alternative DSM-5 Model for Personality Disorders (AMPD) (American Psychiatric Association, 2013). The AMPD purports that personality disorders are a combination of pathological personality traits (including negative affectivity, detachment, antagonism, disinhibition and psychoticism) and personality dysfunction – including elements of self-function (e.g., identity, self-direction) and interpersonal function (e.g., empathy, intimacy). The AMPD also specifies that these traits and functioning are *relatively* stable – meaning that in the majority of cases there is capacity to change. The model set proposed alternative diagnostic criteria for BPD, as follows in Table 1.2. It should be noted that whilst the categorical approach has limitations, the dimensional approach remains in a developmental stage.

Table 1.2

DSM-5 AMPD Borderline Personality Disorder Diagnostic Criteria

A. Moderate or greater impairment in personality functioning, manifested by characteristic difficulties in two or more of the following four areas:
1. *Identity:* Markedly impoverished, poorly developed, or unstable self-image, often associated with excessive self-criticism; chronic feelings of emptiness; dissociative states under stress.
2. *Self-direction:* Instability in goals, aspirations, values, or career plans.
3. *Empathy:* Compromised ability to recognise the feelings and needs of others associated with interpersonal hypersensitivity (i.e., prone to feel slighted or insulted); perceptions of others selectively biased toward negative attributes or vulnerabilities.

4. *Intimacy:* Intense, unstable, and conflicted close relationships, marked by mistrust, neediness, and anxious preoccupation with real or imagined abandonment; close relationships often viewed in extremes of idealisation and devaluation and alternating between over involvement and withdrawal.

B. Four or more of the following seven pathological personality traits, at least one of which must be (5) Impulsivity, (6) Risk taking, or (7) Hostility:

1. *Emotional lability* (an aspect of Negative Affectivity): Unstable emotional experiences and frequent mood changes; emotions that are easily aroused, intense, and/or out of proportion to events and circumstances.
2. *Anxiousness* (an aspect of Negative Affectivity): Intense feelings of nervousness, tenseness, or panic, often in reaction to interpersonal stresses; worry about the negative effects of past unpleasant experiences and future negative possibilities; feeling fearful, apprehensive, or threatened by uncertainty; fears of falling apart or losing control.
3. *Separation insecurity* (an aspect of Negative Affectivity): Fears of rejection by— and/or separation from—significant others, associated with fears of excessive dependency and complete loss of autonomy.
4. *Depressivity* (an aspect of Negative Affectivity): Frequent feelings of being down, miserable, and/or hopeless; difficulty recovering from such moods; pessimism about the future; pervasive shame; feelings of inferior self-worth; thoughts of suicide and suicidal behaviour.
5. *Impulsivity* (an aspect of Disinhibition): Acting on the spur of the moment in response to immediate stimuli; acting on a momentary basis without a plan or consideration of outcomes; difficulty establishing or following plans; a sense of urgency and self-harming behaviour under emotional distress.
6. *Risk taking* (an aspect of Disinhibition): Engagement in dangerous, risky, and potentially self-damaging activities, unnecessarily and without regard to consequences; lack of concern for one's limitations and denial of the reality of personal danger.
7. *Hostility* (an aspect of Antagonism): Persistent or frequent angry feelings; anger or irritability in response to minor slights and insults.

(American Psychiatric Association, 2013)

1.3 Distress and Dysfunction in BPD

1.3.1 Distress in BPD

BPD is inherently associated with significant distress and dysfunction. Many people with BPD report an intense and at times intolerable feeling of emotional pain (Holm & Severinsson, 2008; Stiglmayr et al., 2001; Zanarini et al., 1998a). Emotional

distress has been described as including feelings of emptiness, sadness, hopelessness, anger, shame and brokenness (Greenberg & Bolger, 2001). For individuals with BPD, experiences of emotional distress and associated physiological arousal are often compounded by a sense of guilt about being unable to identify or regulate these distressing emotions (Ebner-Priemer et al., 2008; Holm & Severinsson, 2008). Distress may manifest as maladaptive traits (Winsper, 2018), including emotion dysregulation, hypersensitivity to perceived rejection by others, a preoccupation with fears of abandonment, impulsive behaviours, dissociative experiences, episodes of intense anger and self-harm.

Intolerably elevated and ongoing feelings of distress may culminate in suicide attempts and suicide for people with BPD. Individuals with BPD often experience both chronic and acute suicidality (Pompili et al., 2005). Chronic suicidality has been conceptualised as a strategy to communicate ongoing distress and elicit care from or relate to others (Paris, 2002; Sansone, 2004). Comparatively, acute suicidality is often precipitated by external stressors, which increase vulnerability to the onset or increased severity of psychiatric symptoms (Sansone, 2004) and can lead to suicide attempts or suicide. Severity of BPD is a unique predictor of attempted suicide (Ansell et al., 2015), with one study finding a mean of three lifetime suicide attempts for individuals with BPD (Soloff et al., 2000). Although there are difficulties with estimating the incidence and prevalence of suicide attempts among people with BPD, Soloff and colleagues (1994) found that 72.6% of a sample of adults with BPD had attempted suicide at least once, while Gunderson (2009) estimated between 60-70% of people with BPD will attempt suicide in their life. Specific rates of suicide remain uncertain, although studies estimate between approximately 3-10% of people with BPD die by suicide (Lieb et al.,

2004; Paris, 2019; Pompili et al., 2005). One longitudinal study following people with BPD over 27 years found 10.3% of the original cohort had died by suicide (Paris & Zweig-Frank, 2001), while two other long-term studies indicated suicide rates of 3% (McGlashan, 1986) and 9% (Stone et al., 1987b). An ongoing prospective longitudinal study reported that of 290 initial participants, 4.5% had died by suicide by the 16-year follow-up (Zanarini et al., 2012), and 5.9% had died by suicide by the 24-year follow-up (Temes et al., 2019).

1.3.2 Dysfunction in BPD

BPD is associated with significant psychosocial – vocational and social – dysfunction, which can represent an enduring difficulty for individuals (Skodol et al., 2005). In a large scale study of mental health in the US, people with personality disorders were more likely to experience impairments in both basic role function including mobility, self-care and cognition, and instrumental role function including days out of role, productive role functioning and social functioning (Lenzenweger et al., 2007). The study found people with BPD were 2.6-8.5 times more likely to experience psychosocial dysfunction compared to people without BPD. In a sample of 351 young people studied over two years, BPD features were predictive of low cumulative Grade Point Average (GPA), number of semesters on academic probation and social maladjustment (including instrumental and expressive role performance in areas of work, social activities, relationships with family and economic function) (Bagge et al., 2004). The impact of BPD features on negative outcomes was observed over and above general features of psychopathology and features of other personality disorders, suggesting there are unique aspects of BPD that impair function. People with BPD endorse a higher quantity of negative life events (Cramer et al., 2006), but also seem to

experience difficulties with psychosocial function independent of contextual life events (Jovev, 2006). It is hypothesised that this may be linked to a consistent activation of core maladaptive schemas, which leads to continual distress and dysfunction (Jovev, 2006).

Difficulties with social relationships and interactions are inexorably linked to a diagnosis of BPD (American Psychiatric Association, 2013). People with BPD have been shown to experience deficits in social cognition including difficulties identifying thoughts, feelings and intentions of others (Preißler et al., 2010). There is a tendency for individuals with BPD to misinterpret neutral social situations, experience feelings of rejection even when included and experience epistemic distrust (Fonagy et al., 2017; Lis & Bohus, 2013). It has been theorised that social dysfunction in BPD may in part arise from hypermentalising – a style of mentalising where an individual makes excessively inferential assumptions about other's mental states so much that they become unlikely and unrealistic (Sharp & Vanwoerden, 2015). A study examining social interactions and emotional ratings over seven days found that daily interpersonal interactions are experienced as difficult for people with BPD (Stepp et al., 2009). Compared to people with other personality disorders or with no personality disorder, individuals with BPD reported more negative emotions and less positive emotions during and after social interactions. Specifically, participants with BPD endorsed significantly higher severity of emptiness, anger, sadness and anxiety. Similarly, when comparing people with BPD, another personality disorder or an Axis I disorder, individuals with BPD had higher levels of interpersonal dysfunction across a number of measurement methods (Stepp et al., 2011). Further, studies have found that a diagnosis of BPD is associated particularly with impairments in romantic relationships (Hill et al., 2008). One study found that

preoccupied and unresolved attachment styles and symptoms of BPD were both independently associated with impaired romantic relationships (Hill et al., 2011), and the relationship between preoccupied attachment style and romantic dysfunction was mediated by BPD symptoms.

It has been suggested that vocational functioning in BPD is more impaired than social functioning (Zanarini et al., 2010a), and a diagnosis of BPD is strongly associated with lost days of function (Jackson & Burgess, 2004). Compared to people with other personality disorders, individuals with BPD are less likely to engage in sustained employment or education (Zanarini et al., 2005), and are three to four times more likely to be receiving disability pension payments (Zanarini et al., 2005; Zanarini et al., 2009). Research has identified that people with BPD typically hold a higher number of jobs but are employed less consistently, and are more likely to be dismissed from employment compared to people without BPD (Sansone et al., 2012). Overall, the literature has reliably demonstrated that a diagnosis of BPD is linked to significant impairment both in social and vocational realms, which may be impacted by individual symptoms of BPD such as chronic feelings of emptiness.

1.4 Chronic Feelings of Emptiness in BPD

1.4.1 Limited Research on Chronic Emptiness

Research has been conducted on individual symptoms of BPD, for example impulsivity (Sharma et al., 2014) and mood dysregulation (Koenigsberg, 2010). This knowledge has contributed to a greater understanding of BPD with implications for clinical practice. However, there is a dearth of knowledge regarding chronic feelings of emptiness. Although chronic emptiness has been included as a symptom of BPD since personality disorders were first included in the Diagnostic and Statistical Manual, Third

Edition (DSM-III) (American Psychiatric Association, 1980) and has been considered important to the theoretical conceptualisation of BPD, there have been relatively little empirical investigations into the symptom. There may be several reasons that chronic emptiness has received minimal attention in the literature. Firstly, there seem to be inherent difficulties in attempting to define what is commonly thought of as an absence of feeling. Secondly, unlike symptoms of impulsivity and mood dysregulation, which can be defined behaviourally, chronic emptiness is dependent on an internal subjective experience. Given that people with BPD often find it difficult to identify, label and articulate their emotions (New et al., 2012), it is unsurprising there have been limited efforts to unveil the phenomenological experience of a feeling of emptiness for people with BPD. Thirdly, chronic emptiness does not present as an acute symptom of BPD that needs immediate intervention, as opposed to symptoms such as impulsivity or self-harm (Zanarini et al., 2007). Research – particularly research focusing on clinical interventions – has typically focused on acute symptomology in need of immediate intervention. In many studies, chronic emptiness is included only due to its presence in the diagnostic criteria and consequently BPD screening and assessment measures but is rarely rigorously investigated. For these reasons, there have been difficulties in adequately understanding the experience of chronic emptiness for people with BPD and this may reflect why our understanding of emptiness is in its infancy.

1.5 Theoretical Conceptualisations of Emptiness

1.5.1 Origins of Chronic Emptiness

BPD was originally described in 1938 to distinguish a group of individuals who had difficulties with emotion regulation, impulsivity, hypersensitivity in relationships and feelings of insecurity, and who often did poorly in psychological treatment (Stern,

1938). The same group were described to have an 'as if' personality – a personality that only on the surface looks complete (Deutsch, 1942). Internal feelings of emptiness were included in early conceptualisations of BPD: "all inner experience is completely excluded. It is like the performance of an actor who is technically well trained but who lacks the necessary spark to make his impersonations true to life" (Deutsch, 1942, p. 328). Individuals who experienced chronic emptiness were purported to be deficient in their capacity to access experiences fully, with a false outer self that deadens experiences in order to protect an unstable inner self, acting as an overlay or mask (Cary, 1972; Grinker et al., 1968). Similarly, people with BPD were likened to chameleons, where they adapt to new situations so well others are initially unable to notice the emptiness beneath the façade (Kernberg, 1967). There are few well developed theories of emptiness. The following sections describe the major predominant theoretical conceptualisations of chronic feelings of emptiness.

1.5.2 Psychodynamic Conceptualisation of Chronic Emptiness

In psychodynamic history, emptiness is a distinguishing feature of BPD which reflects deficits in object relations – the representations of self and others. Object relations theories place importance on the internalisation of relationships between the self and significant others (Clarkin et al., 2007). For people with BPD, it was hypothesised that the absence of a 'good enough' caregiver or an emotionally distant caregiver resulted in the inability to internalise nurturing and positive experiences, leading to unstable self and other representations (Adler & Buie, 1979; Masterson, 1976; Masterson & Rinsley, 1975; Winnicott, 1974; Winnicott, 1984). The deficiencies in the integration of stable object relations was theorised to result in the syndrome of identity diffusion. Identity diffusion was first described by Erikson (1956) as a

deficiency in the capacity for self-definition. As the capacity for relationship with others is dependent upon a stable definition of the self, it was recognised that deficiencies in self-definition were intrinsically related to deficiencies in interpersonal relationships. The deficiency in knowing oneself was theorised to lead to a "sense of inner vacuum" (Kernberg, 2017, p. 971) and a lack of attunement with the self (Kernberg, 1968; Kernberg, 1975; Kernberg, 1967). As a result, people with BPD may continually seek out other objects to compensate for an inner absence (Buie & Adler, 1982; Hartocollis, 1977; Pazzagli & Monti, 2000). In summary, psychodynamically oriented theories propose that the absence of good enough caregivers results in unstable representations of self and others, resulting in identity diffusion which manifests as feelings of emptiness. These ideas continue in contemporary psychodynamic conceptualisation, where emptiness is related to identity disturbance and typically represents poorer mental function and lower levels of structural integration (Caligor et al., 2018; Lingiardi & McWilliams, 2017; OPD Task Force, 2008).

1.5.3 Biosocial Models of Chronic Emptiness – a Dialectical Behaviour Therapy Approach

Biosocial theories of BPD which underlie Dialectical Behaviour Therapy (DBT) focus more explicitly on the interaction between genes and environment in the development of BPD. The biosocial model proposes that early experiences of invalidation or inconsistent responses from caregivers result in a lowered capacity to identify, understand and regulate emotions and an exacerbation of emotional sensitivity and reactivity (Crowell et al., 2009; Shenk & Fruzzetti, 2011). It is suggested that these deficits in emotional awareness and identification may result in a feeling of inner emptiness: "The lack of consistent validating responses, along with at least intermittent

invalidating responses… naturally leads to several of the problems described by individuals with BPD, such as a sense of emptiness (not "knowing" one's private experiences at all)." (Fruzzetti et al., 2005, p. 1002). It has also been proposed that for people with BPD, feelings of emptiness may arise from attempts to inhibit intense emotional experiences, and this avoidance of emotional responses contributes to a lack of identity (Linehan, 1993, 2015).

1.5.4 Mentalisation Conceptualisation of Chronic Emptiness

Mentalisation approaches propose that people with BPD have deficits in accurately identifying the mental states of others in attachment relationships (Bateman & Fonagy, 2013). There are several hypotheses regarding the role of emptiness within mentalisation-based approaches. Chronic feelings of emptiness may represent an absent second order representation of the self – meaning there is limited to no internalisation of a caregiver's representation of the constitutional self (Fonagy, 2000). Similarly, it has been suggested that feelings of emptiness are a component of the pre-mentalising 'pretend' mode, where the inner mental world is not connected to reality and is characterised by a disproportionate internal focus, shallow relationships and hypermentalisation (Fonagy et al., 2015). A hypersensitive attachment system which may be associated with difficulties in mentalisation may also reduce the activation of other neurological systems, including areas associated with emotionally based episodic memories (Fonagy & Bateman, 2006). This reduction of episodic memory and associated affect is hypothesised to result in chronic feelings of emptiness. However, recent research has further identified a correlation between theory of mind and emptiness in BPD, such that a higher severity of emptiness is associated with increased

‘undermentalising’ (reduced theory of mind) (Goueli et al., 2019; Hutsebaut & Aleva, 2020). Additional research is required to further understand this relationship.

1.5.5 Schema Therapy Approaches to Chronic Emptiness

Schema therapy approaches extend upon cognitive therapies (which focus on modifying inaccurate cognitions and unhelpful behaviours in order to decrease emotional distress (Beck & Haigh, 2014)) to account for more pervasive belief systems and maladaptive coping (Sempértegui et al., 2013). Treatment attempts to target early maladaptive schemas that individuals form during childhood about themselves, others and the world (Arntz & Van Genderen, 2011). Feelings of emptiness may arise from the: 1) ‘other-directedness’ schema domain which involves the suppression of one’s own feelings and need to gain approval from others (Sempértegui et al., 2013); or 2) ‘enmeshment/undeveloped self’ domain where individuation from others has not been achieved (Young et al., 2006). Emptiness is also a common feeling observed in the ‘detached protector’ mode where individuals may attempt to withdraw from psychological pain and avoid intense or intolerable feelings by emotionally detaching (Arntz & Jacob, 2017).

1.6 Empirical Findings of Emptiness

Despite the rather limited empirical evidence on chronic emptiness, there have been some recent studies that indicate the important role of emptiness in BPD.

1.6.1 Chronic Emptiness is Characterised by Low Positive Affect

A recent study investigating positive and negative affect for women with BPD found the experience of chronic emptiness was relatively common, occurring approximately 51.5% over the three week study period time (Harpøth et al., 2019). Further, the study identified a negative association between positive affect and chronic

emptiness alongside symptoms of affect dysregulation, anger, identity disturbance and dissociation. Feelings of chronic emptiness had the strongest negative association with positive affect across all symptoms. This finding suggests that feelings of chronic emptiness may not represent high levels of negative affect, but rather low levels of positive affect. This has also been proposed in an earlier study, where results suggested chronic emptiness and closely related experiences like hopelessness and loneliness were characterized by low positive affect (Klonsky, 2008). A recent factor analysis of a large sample of undergraduate students differentiated between 'Empty', 'Unstable' and 'Asymptomatic' groups on a version of the McLean Screening Instrument for Borderline Personality Disorder (MSI-BPD) (Johnson & Levy, 2020). Of the sample, 11% were categorised as 'Empty', with more severe emptiness, dissociation, depression, anxiety, lower levels of positive affect and higher levels of avoidant attachment. This provides further evidence for chronic emptiness as an experience of low positive affect and suggests that feelings of chronic emptiness may not occur in solitude, but in relation to several other distressing experiences.

1.6.2 Emptiness and Psychosocial Dysfunction

Chronic feelings of emptiness is linked to dysfunction for individuals with BPD. A study of people presenting for outpatient psychiatric treatment investigated endorsement of individual symptoms of BPD including impulsivity, mood dysregulation, anger and chronic feelings of emptiness (Ellison et al., 2016). After controlling for demographic variables, the group that endorsed chronic emptiness had the poorest outcomes. This group had the poorest global (Global Assessment of Functioning; GAF) and social function, and missed the most work due to a psychiatric reason in the last five years (Ellison et al., 2016). The relationship between social

dysfunction and emptiness is supported by the results from an earlier study which found people with BPD reported experiencing higher levels of emptiness during interactions with close relationships – including romantic and family relationships and friendships (Stepp et al., 2009). These results are indicative of the elevated risk of adverse outcomes that is associated with chronic emptiness and dysfunction in both the vocational and social realms.

1.6.3 Emptiness and Psychological Distress

Research has indicated there is a relationship between self-harm or non-suicidal self-injury (NSSI) and feelings of emptiness. In a study of young adults with a history of repetitive self-harm behaviour, 67% indicated they felt empty inside prior to self-harm, and 47% reported they felt empty after self-harm (Klonsky, 2008). Another study investigated adolescents who had engaged in NSSI and found emptiness mediated the relationship between childhood emotional maltreatment and NSSI (Rallis et al., 2012). In research specific to BPD, feelings of chronic emptiness in BPD have also been associated with self-harm. In a qualitative study asking women with BPD to recount their life story, one emergent theme was 'life stories depicting chronic feelings of emptiness in the relationship with the self' (Ntshingila et al., 2016). The participants in the study explained that they engaged in impulsive behaviours such as self-harm in an attempt to fill the 'void' of emptiness they experienced. Another study found that among other symptoms of BPD, feelings of chronic emptiness was positively associated with a lifetime history of NSSI in undergraduate students (Brickman et al., 2014). The authors suggested that feelings of emptiness acts as an antecedent to NSSI among young adults.

Suicidal ideation, plans and attempts have also been implicated in feelings of chronic emptiness. In a study by Ellison et al. (2016) of individuals endorsing single symptoms of BPD, participants in the emptiness group endorsed slightly higher levels of suicidality and had a greater likelihood of lifetime suicide attempts than other groups (Ellison et al., 2016). This may reflect the distress associated with feelings of emptiness, manifesting in the form of suicidality. A study of a non-clinical sample reported on the relationships between BPD symptoms and suicidal ideation, and found a significant and large association between ratings of emptiness and suicidal ideation (Klonsky, 2008). For individuals with BPD, endorsement of chronic emptiness in addition to identity disturbance, impulsivity and anger increased the odds of suicide attempts (Harford et al., 2019). Following a suicide attempt, people with BPD who endorsed chronic emptiness, mood dysregulation and identity disturbance made up the greatest proportion of participants who had made more than three suicide attempts in their lifetime (Verkes et al., 1998). In an exploratory review of the relationship between suicidal behaviours and emptiness across all mental health diagnoses, researchers found a strong relationship between the want to feel something rather than emptiness and having made more than four lifetime suicide attempts (Blasco-Fontecilla et al., 2013). It is possible that chronic feelings of emptiness are experienced as intolerable and lead to a sense of meaninglessness in life, thwarted belongingness and perceived burdensomeness, culminating in suicidal ideation and attempts (Van Orden et al., 2010).

1.6.4 Emptiness – the Borderline Depression?

While depression has never been a criterion for meeting a diagnosis of BPD (American Psychiatric Association, 2013), there is high occurrence of both reported depressive experiences and diagnosable depressive disorders like Major Depressive

Disorder (MDD) in BPD (Kohling et al., 2015; Silk, 2010). Comorbidity between BPD and MDD ranges from 41-83% (Lieb et al., 2004; McGlashan et al., 2000; Zanarini et al., 1998b). There are also indications, however, that there exists a 'borderline depression' which is qualitatively different to the experiences of affective disorders (Cary, 1972; Westen et al., 1992). This perspective views borderline depression as a constant and chronic experience, as opposed to the more typical episodic nature of affective disorders. Borderline depression seems to be centred on experiences of emptiness, loneliness, anger, impaired self-concept and relationships rather than the characteristic feeling of guilt in MDD (Gunderson & Phillips, 1991; Kohling et al., 2015; Leichsenring, 2004; Silk, 2010; Westen et al., 1992). The experience of depression in BPD seems to be intrinsically linked to an insecure and negative self-identity accompanied by self-condemnation, which is exacerbated by feelings of emptiness (Kohling et al., 2015; Rogers et al., 1995). As such, it is possible that feelings of emptiness are linked to depressive experiences in BPD.

1.6.5 Chronic Emptiness and Associated Constructs

In light of these findings, there has also been some consideration that the chronic feelings of emptiness criterion represents feelings of loneliness, isolation or hopelessness in one construct (Blasco-Fontecilla et al., 2013). However, Klonsky (2008) found that whilst there were high correlations between feelings of emptiness and hopelessness, isolation and loneliness in a sample of participants engaging in self-harm, the constructs were all distinct. This lends support to the notion that emptiness is associated with constructs like loneliness and hopelessness but can be isolated as its own separate construct. Further exploration of this research area is warranted.

1.6.6 Chronicity

In addition to the distress and dysfunction associated with emptiness, it appears to be an enduring symptom of BPD that does not easily remit through current treatments. In a study of symptomology in people with BPD over ten years, chronic emptiness/loneliness took the longest time to remit at an average of 8-10 years compared to more acute symptoms which typically resolved within two years (Zanarini et al., 2007). Over sixteen years, chronic emptiness/loneliness was found to have poor remission rates and high recurrence rates compared to 'acute' symptoms of BPD such as self-mutilation and affective instability (Zanarini et al., 2016). Chronic emptiness appears to be more severe in adults over the age of 45 compared to adults aged between 18-25 with BPD (Morgan et al., 2013). It is currently unclear whether the chronicity of emptiness is attributable to the phenomenon itself, the lack of treatment targeted towards alleviating emptiness or a combination of both factors.

1.6.7 Measurement of Emptiness

One recent study by Price et al. (2020) reasoned that one factor contributing to the limited research on emptiness was the lack of a specifically designed measure. They developed a five-item transdiagnostic measure of emptiness named the Subjective Emptiness Scale (SES), presented in Table 1.3. The SES was demonstrated to have high internal consistency among a sample of people with mental health disorders and showed evidence of reflecting a unidimensional construct. The authors suggested that the construct of emptiness includes "the experience of profound hollowness and disconnection from self and others, lack of fulfillment and an absence of meaning" (Price et al., 2020, p. 1). Although this literature has been a significant contribution to the field, there remains no consensus of the nature of chronic feelings of emptiness in

BPD. Importantly, the SES is a measure that is not diagnosis-specific. While emptiness has been reported in other mental health disorders such as depression (Rhodes et al., 2018), it may be experienced differently for people with BPD, and further research into measuring chronic emptiness in BPD is warranted.

Table 1.3
Subjective Emptiness Scale Developed by Price and Colleagues

1. I feel empty inside
2. I feel absent in my own life
3. No matter what I do, I still feel unfulfilled
4. I feel like I am forced to exist
5. I feel all alone in the world

Note – Possible responses include 'not at all true', 'somewhat true', 'mainly true' and 'very true'

1.6.8 Lack of Intervention for Emptiness

When considering the chronic nature of feelings of emptiness and the links to self-harm, suicidality and reduced psychosocial function, it seems pertinent to develop interventions targeted towards alleviating the symptom. However, at present there is no pharmacological or psychological treatment for chronic feelings of emptiness in BPD.

One systematic review reported some beneficial effects of medications in BPD, however there were no pharmacological interventions that would alleviate chronic emptiness, identity disturbance or avoidance of abandonment (Stoffers et al., 2010). A meta-analysis investigating effectiveness of psychotherapies for BPD symptoms was unable to report on effectiveness of therapy for chronic emptiness and identity disturbance, as these outcomes were not reported in most studies (Oud et al., 2018). The authors found that when comparing Dialectical Behaviour Therapy (DBT), Mentalisation-Based Treatment (MBT), Transference-Focused Therapy (TFP) and Schema Therapy (ST) trials, all utilised the Structured Clinical Interview for DSM-5

(SCID-II) or the Revised Diagnostic Interview for Borderlines (DIB-R), which contain questions regarding chronic feelings of emptiness. Despite this, chronic emptiness was not included in any analyses.

1.7 Aims and Outline of the Thesis

The subjective and complex nature of chronic emptiness in BPD has likely contributed to lack of research on the topic. However, there have been some indications, both theoretically and empirically, that chronic emptiness is important to the conceptualisation, course and outcomes of BPD. The following studies seek to explore and understand the importance, influence and nature of chronic feelings of emptiness for people with BPD.

The studies reported here include an analysis of current literature, quantitative longitudinal data and qualitative data. Study One aimed to systematically examine the current evidence base for chronic emptiness in BPD and elucidate key knowledge on emptiness. Study Two is a longitudinal study that aimed to understand the influence of BPD symptomology on psychosocial function over one year in a sample of people receiving treatment for BPD. It further aimed to explore the direct and indirect impact of chronic emptiness on dysfunction. Study Three used qualitative interviews of people with BPD to clarify the nature of chronic emptiness and the cognitions, emotions and behaviours linked to emptiness, and additionally examine the differences between chronic emptiness and related experiences including hopelessness, loneliness, dissociation and depression. In sum, the following studies sought to clarify the nature of chronic emptiness for people with BPD including its relationship to distress and dysfunction, in order to inform clinical interventions in the future.

2. Study One.

Measuring the shadows: A systematic review of chronic emptiness in Borderline Personality Disorder

This chapter has been published in the journal *PLOS One*.

Miller, C. E., Townsend, M. L., Day, N. J. S., & Grenyer, B. F. S. (2020). Measuring the shadows: A systematic review of chronic emptiness in borderline personality disorder. *PLOS ONE, 15*(7): e0233970. https://doi.org/10.1371/journal.pone.0233970.

2.1 Introduction

2.1.1 Background

"To define accurately what the word [emptiness] means in any context can feel like trying to find a light switch in a totally dark and unfamiliar room" (Lamprell, 1994, p. 331).

Borderline Personality Disorder (BPD) is a complex mental disorder characterised by a pervasive instability of self-concept, emotions, and behaviour (American Psychiatric Association, 2013). Globally, lifetime prevalence of BPD is estimated at approximately 1.8% (Winsper et al., 2020a), but individuals with BPD can account for up to 20.5% of emergency department presentations and 26.6% of inpatient psychological services (Grenyer, 2017; Lewis et al., 2019). Within personality disorder research, the landscape of formulation and diagnosis is evolving, and there is a need to research features of BPD which are important in both traditional categorical and emerging dimensional approaches . Current diagnosis for BPD involves identifying a minimum five of nine possible criteria in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) (American Psychiatric Association, 2013). One criterion is labelled chronic feelings of emptiness. This symptom remains in the alternative diagnostic model for BPD in DSM-5, where it is associated with identity disturbance.

Feelings of chronic emptiness have always been included in the conceptualisation and diagnosis of BPD (American Psychiatric Association, 1980). In an early seminal paper, Deutsch (1942) described a group of people who experience inner emptiness in their emotional life, a feeling where "all inner experience is completely excluded. It is like the performance of an actor who is technically well trained but who lacks the necessary spark to make his impersonations true to life"

(Deutsch, 1942, p. 328). This experience was described as resulting in a 'chameleonlike quality' in interpersonal relationships, where pretence and adaptability masks the emptiness underneath (Kernberg, 1967). Chronic feelings of emptiness has also been described as akin to 'deadness', 'nothingness', a 'void', feeling 'swallowed'(Cary, 1972), a sense of 'vagueness' (Singer, 1977), a feeling of internal absence (Kernberg, 1984) , 'woodenness' (LaFarge, 1989), a 'hole' or 'vacuum', 'aloneness' (Lamprell, 1994), 'isolation' (Kernberg, 2017), 'numbness' and 'alienation'(Fuchs, 2007).

There are several theoretical views of chronic emptiness in BPD. According to early theoretical literature, people who experience chronic feelings of emptiness lack the capacity to experience themselves, others, or the world fully and there is "a profound lack of emotional depth or sense of not being in the experience" (Cary, 1972, p. 34; Kernberg, 1984). Kernberg (1968; 1967) suggested that emptiness results from a loss of, or disturbance in, the relationship of self with object relations, with a lack of integrated representations leading to an absence of 'self-feeling' (Kernberg, 1975; Levy, 1984). Other analysts similarly proposed that emptiness results from deficits in maintaining stable object relations (Buie & Adler, 1982; Hartocollis, 1977; Pazzagli & Monti, 2000) and an inability to develop soothing and holding introjects – meaning difficulties with internalising positive and nurturing experiences (Adler & Buie, 1979; Cohen & Sherwood, 1996), perhaps resulting from the absence of a 'good enough' caregiver (Winnicott, 1974; Winnicott, 1984). Overall, these analysts attributed emptiness to the absence of a good maternal presence, resulting in unstable object- and self-representations and a feeling of inner emptiness. This theory was supported in part by an early study by Grinker and colleagues (1968) which found inadequate awareness of self was sufficient for predicting BPD group membership, including a deficiency in

recognising internal thoughts and affects as belonging to oneself and an associated feeling of chronic emptiness. Chronic feelings of emptiness were proposed to drive "the basis of his attempt to appropriate from others, or of his feeling of danger of being engulfed by others. Some try to borrow from others, become satellitic to another, merge with a host or lay skin to skin. Others attempt to fill up with knowledge or experience" (Grinker et al., 1968, p. 16). These early concepts are still utilised within contemporary psychodynamic approaches to personality assessment, diagnosis and treatment, with a focus on emptiness reflecting disturbances of identity (Caligor et al., 2018; OPD Task Force, 2008).

Biosocial models of BPD suggest that chronic feelings of emptiness are reflective of a dysregulation of identity (Linehan, 2015). Emptiness is conceptualised as an attempt (whether conscious or not) to inhibit intense emotional experiences, which leads to a lack of development in personal identity (Linehan, 1993). It is hypothesised chronic emptiness results from insecure attachments with caregivers (Levy, 2005), and transactional models propose emptiness is the experience of an individual not knowing their own personal experience, resulting from inconsistent validation and invalidation responses by caregivers (Fruzzetti et al., 2005). This understanding is similar to attachment and mentalisation perspectives, where feelings of emptiness reflect a failure in mentalisation. Specifically, emptiness is a consequence of the absence of the psychological self – the secondary representation of self which allows an understanding of one's own internal world, and the world seen through the eyes of others (Fonagy, 2000).

Despite the numerous theories that mention emptiness, there remains no unifying theory of chronic emptiness in BPD, and it is not typically accounted for in

aetiological models of BPD (Winsper, 2018). Further, the symptom has rarely been the focus of empirical research (Lamprell, 1994). Substantial empirical literature exists for other symptoms of BPD such as affective instability and impulsivity (Koenigsberg, 2010; Sharma et al., 2014), but until recently there has been a limited focus on chronic feelings of emptiness. There appears to be confusion within the field regarding what chronic emptiness actually *is*, with vague boundaries between constructs like hopelessness, loneliness, or boredom (Blasco-Fontecilla et al., 2013) and with research often referring to each term interchangeably.

Despite this lack of clarity within the research, recent studies have shown an increased focus on chronic emptiness, suggesting the experience may be associated with vocational and interpersonal dysfunction (Ellison et al., 2016; Miller et al., 2018) and self-harm and suicidal behaviours (Brickman et al., 2014). Research has also linked chronic emptiness to depressive experiences unique to people with BPD – a possible 'borderline depression' (Kohling et al., 2015).

2.1.2 Study Aims

In order to better understand what chronic emptiness is and the importance of chronic feelings of emptiness to the conceptualisation, course, and outcomes of BPD it is important first to analyse the current literature to provide a baseline for future work. In particular, it is important to identify any research that supports theoretical claims that chronic emptiness is a reflection of impaired relationships with the self and others. It is also important to identify research that reports on whether chronic emptiness represents a single construct or if it encompasses other experiences, such as hopelessness, loneliness or depression. In order to achieve this, the current study aimed to (1) systematically review empirical research on chronic emptiness in populations with

features or a diagnosis of BPD and (2) review related terms in populations with features or a diagnosis of BPD. Considering there are currently no detailed reviews, a broad focus was employed that is unrestrictive to interventions and outcomes. A cohesive analysis of the empirical literature will enable an understanding of the current state of the field and provide directions for future research.

2.2 Method

2.2.1 Protocol and Registration

A protocol for the current study was registered on the International Prospective Register of Systematic Reviews (PROSPERO, registration number: CRD42018075602; Appendix 2). Articles were identified, screened, and chosen for inclusion in accordance with the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) guidelines for reviews (Appendix 3) (Moher et al., 2010).

2.2.2 Information Sources

Electronic databases searched included PsycINFO, PubMed, Scopus, and Web of Science. The last search date was February 2019. Additional records known to authors which were not captured in original database searching were added.

2.2.3 Search

The search strategy for online studies remained the same across databases and included (Empt* or isolat* or vacuum or dead or deadness or nothing* or void or swallowed or bored* or numb* or alien* or wooden* or hole or alone* or vague* or hopeless* or lonel*) AND (borderline personality disorder or BPD or emotionally unstable personality disorder). Truncation was used in search terms to capture variations in terminology.

2.2.4 Eligibility and Inclusion Criteria

Studies were eligible for analysis if they met the following criteria: a) Research focusing on individuals with features or diagnosis of BPD and community populations endorsing features of BPD that b) contain novel empirical data (quantitative, qualitative, or mixed methods, excluding systematic reviews and case studies), c) are peer-reviewed, d) discuss findings related to chronic emptiness or a related construct in their results or discussion, and e) meet quality assessment.

Due to the limited nature of the research on chronic feelings of emptiness, eligible studies were not restricted by intervention type, comparison, or outcomes. Further, there was no time limit set on searches in order to capture early data regarding emptiness. Language was not restricted as translating software was used.

Study Selection

Articles which did not meet initial screening criteria were excluded. Articles were then screened by title and abstract by two reviewers for inclusion in full-text review. Disagreement on inclusion of articles for screening was resolved by discussion and advice with another reviewer until consensus was reached. Following full text screening, articles were further excluded if they a) were unable to be translated and authors could not be contacted, and b) contained keywords which were discussed only in the context of Schema therapy and coping modes (e.g., lonely child mode).

Risk of Bias in Individual Studies.

Following the selection of articles for full-text review, quality was assessed using the Mixed Methods Appraisal Tool (MMAT) – Version 2011. The MMAT has good interrater reliability and content has been validated (Crowe & Sheppard, 2011; Pace et al., 2012; Pluye et al., 2009). Although the MMAT is yet to be validated in

clinical samples, the absence of a gold standard quality assessment for appraisal of observational studies necessitates the use of modified assessments (Mallen et al., 2006). Two screening questions were asked for all study types prior to further quality assessment; ‘are there clear research questions or objectives?’ and ‘do the collected data address the research questions?’ The observational descriptive quantitative component of the MMAT was used to examine quantitative studies. This encompasses several factors including appropriate sampling methods, justification of methods and acceptable response rates (Pace et al., 2012). The qualitative component of the MMAT was also used, which similarly included factors of appropriate sampling and justification of methods, in addition to understanding the context of information and influence of researchers on results.

Studies which satisfied all other eligibility criteria were given an overall rating of quality. Quality scores for quantitative studies ranged from a possible zero to eight, while qualitative study scores ranged from zero to six. There are no suggested cut-off values that characterise the quality of a study using the MMAT tool. As such, a common-sense approach was taken, where if a study met at least half of the quality criteria (i.e., a score of three for qualitative studies and four for quantitative studies), it was deemed appropriate for detailed data extraction and synthesis. Two authors independently assessed study quality, and consensus was reached by discussion. To reduce possible bias towards the previous study published by the authors’ which was included in the review, an independent researcher who had not been involved in the previous study assessed all studies for quality.

2.2.5 Summary Measures and Synthesis

Following the quality assessment one researcher extracted data from included

studies which was independently checked by a second researcher. Information extracted from articles included aims of the study, study design, participant details, measures, and key results. Quantitative and qualitative studies were summarised in tabular form. One researcher thematically analysed the data to identify key themes in relation to each key word.

2.3 Results

2.3.1 Study Selection

A total of 7435 articles were found by electronic database searching (n = 7431) and additional records known to authors (n = 4). Following the removal of duplicates (n = 2786) and exclusion based on article type (n = 404), articles were excluded by title relevance (n = 2597). 1648 article abstracts were screened, and articles were excluded if they had no novel empirical data or were a case study (n = 355), did not have a focus on BPD or Emotionally Unstable Personality Disorder (n = 264), or if there was no mention of emptiness or related keyword in abstract (n = 911). 118 full-text articles were assessed for eligibility. Articles were excluded if they had no novel empirical data (n = 8), no mention of emptiness or related keywords in the results or discussion (n = 3), no focus on BPD (n = 2), if keywords were only used in the context of Schema therapy (n = 3), and if the article was not translatable using software and authors could not be contacted (n = 1). The study selection process is depicted in Figure 2.1.

Following application of MMAT quality assessment, two studies did not meet quality criteria. One study did not meet screening questions and was excluded from further assessment. The remaining studies (n = 100) were evaluated on the additional four dimensions of the MMAT quantitative descriptive or qualitative tool. One study scored a one and was excluded from further analysis due to low quality. There was a

97.98% agreement between raters for quality assessment; two articles were discussed with a third rater to achieve consensus. All remaining studies (n = 99) scored at least half of the quality criteria and are included in the table of study characteristics, but articles with lower scores should be interpreted with caution (Supplementary Table 2.1).

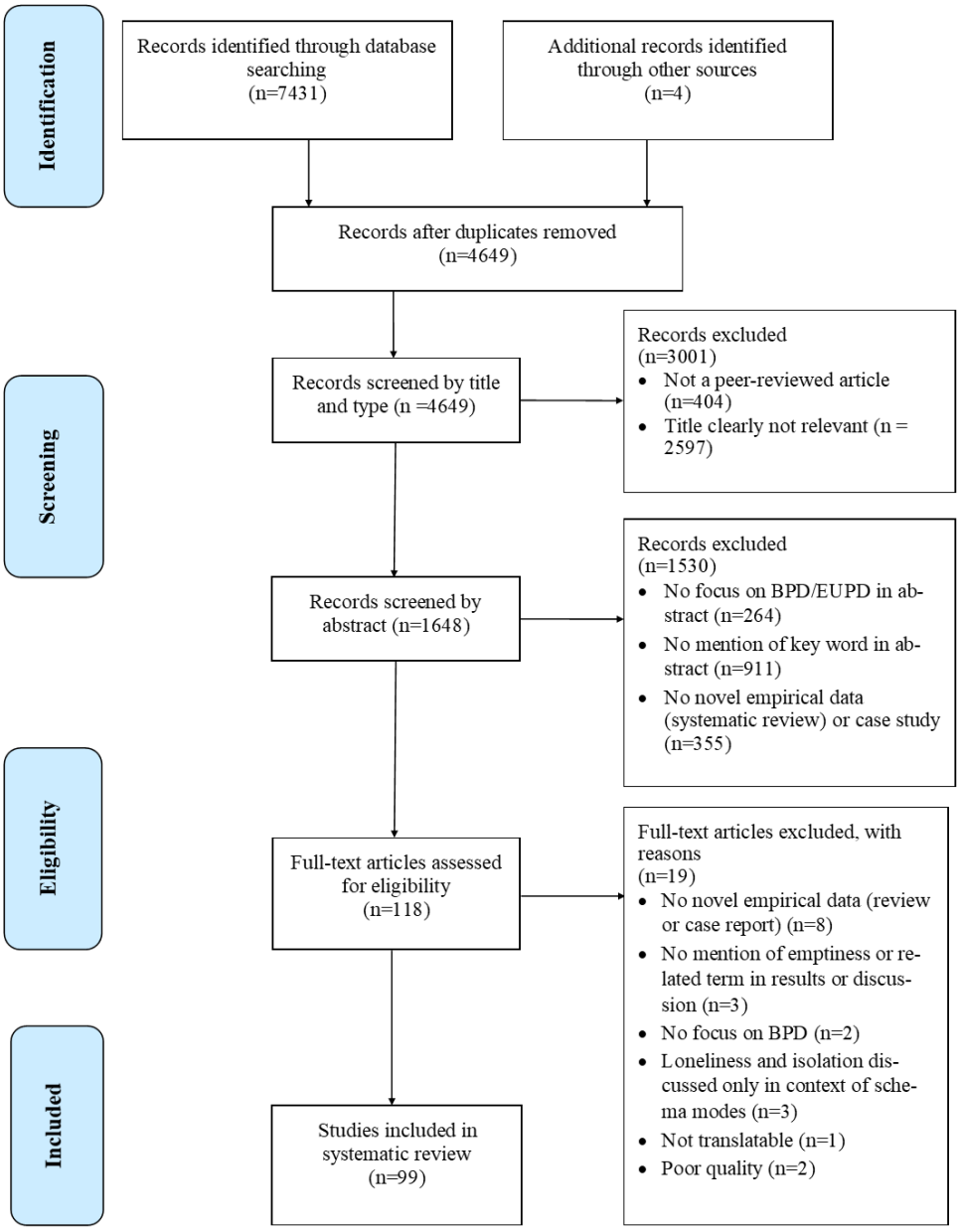


Figure 2.1 *PRISMA Flowchart for Selection of Studies Included in Systematic Review.*

2.3.2 Study Characteristics

Ninety-nine studies were included in data extraction representing a total of 98,340 participants, with a range of seven to 36,309 participants across individual studies. Eighty-three studies reported on average age of their sample, and the overall average age across studies was 32.1 (*SD* = 11.0). Eighty-seven studies reported on gender ratio within their studies. Participants were predominantly female, with a mean of 77.6% (*SD* = 16.9, range = 36.7-100%). Of the 34 studies reporting participant cultural background, Caucasian participants accounted for an average of 77.2%. Further details of study characteristics are included in Table 2.2. Studies utilised a wide range of measures to quantify the experience of chronic emptiness and related terms (see Table 2.3). Supplementary Table 2.4 presents a detailed overview of study characteristics.

Study Focus

Thirty studies chosen for inclusion focused on chronic feelings of emptiness. A further 14 studies focused on chronic feelings of emptiness in addition to at least one other symptom (i.e., chronic feelings of emptiness and hopelessness, chronic feelings of emptiness and loneliness). Thirty-one studies reported on feelings of hopelessness, eight studies reported on loneliness, one study reported on loneliness and aloneness, six studies focused on aloneness, four studies focused on isolation, three studies reported on alienation, and two studies focused on boredom.

Table 2.2

Details of Included Studies

Study details		**Frequency (N)**	**%**
Total studies		99	100
Study design	Quantitative longitudinal	23	23.2
	Quantitative cross sectional	73	73.7
	Qualitative	2	2.0
	Mixed methods	1	1.0
Measure	Measure specific to BPD population [a]	48	48.5
	General measure used	39	39.4
	Both specific and general measure used	11	11.1
	Unspecified measure	1	1.0
Gender	Both female and male	73	73.7
	Female only	18	18.2
	Male only	1	1.0
	Not specified	7	7.1
Sample type	Outpatients	35	35.4
	Inpatients	29	29.3
	Mixed sample	15	15.2
	Non-clinical sample	10	10.1
	Not specified	10	10.1
Study location	Argentina	1	1.0
	Australia	5	5.1
	Canada	4	4.0
	Denmark	2	2.0
	England	2	2.0
	Finland	1	1.0
	France	3	3.0
	Germany	9	9.1
	Ireland	1	1.0
	Israel	1	1.0
	Italy	2	2.0
	Japan	1	1.0
	Mexico	1	1.0
	Netherlands	1	1.0
	Norway	2	2.0
	South Africa	1	1.0
	Spain	5	5.1

	Switzerland	6	6.1
	United States of America	51	52.5

Note. [a] – Specific measures include developed qualitative questions

Table 2.3

Measures Used in Selected Studies to Quantify Emptiness or Related Term and Frequency of Use.

Measure name	**Measure acronym**	**Frequency (N)**
Adult Attachment Projective	AAP	2
Aloneness and Evocative Memory Scale	AEMS	1
Alcohol Use Disorder and Associated Disabilities Interview Schedule-IV	AUDADIS-IV	2
Background Information Schedule	BIS	1
Beck Hopelessness Scale	BHS	26
Bell Object Relations and Reality Testing Inventory	BORRTI	1
Borderline Evaluation of Severity Over Time	BEST	1
Borderline Symptom List	BSL/BSL-23	4
Clinical Global Impression Modified	CGI-M	1
Clinical interview	-	1
Combined Criteria Instrument	CCI	1
Developed measure[a]	-	7
Diagnostic Interview for Borderlines (/Revised)	DIB/DIB-R	18
Diagnostic Interview for Personality Disorders Revised	DIPD-R	2
Experience of Time Alone Scale	ETAS	1
Hurvich Experience Inventory Revised	HEI-R	1
Hopkins Symptom Checklist 90	HSC	2
International Personality Disorders Examination	IPDE	1

McLean Screening Instrument for BPD	MSI-BPD	2
Millon Clinical Multiaxial Inventory	MCMI	1
Multidimensional Personality Questionnaire (/Brief)	MPQ/MPQ-BF	2
Orbach and Mukilincer Mental Pain Scale	OMPP	1
Personality Assessment Interview – Borderline scale	PAI-BOR	1
Personality Diagnostic Questionnaire Revised	PDQ-R	2
Personality Disorder Examination	PDE	2
Personality Inventory for DSM-5	PID-5	1
Rorschach test	-	1
Structured Clinical Interview for DSM-IV Axis II	SCID-II	14
Structured Interview for DSM-IV Personality	SIDP-IV	5
Structured Psychopathological Interview and Rating of the Social Consequences of Psychological Disturbances for Epidemiology	SPIKE	1
Subjective Emptiness Scale	SES	1
Thematic Analysis	-	2
University of California Los Angeles Loneliness Scale	UCLA Loneliness Scale	5
Unspecified measure	-	1
Young Schema Questionnaire	YSQ	1
Zanarini Rating Scale for Borderline Personality Disorder	ZAN-BPD	1

Note. [a] – Developed measure refers to measures created by study authors specifically to answer the study aim which had not been utilised previously.

2.3.3 Key Findings From Studies Focusing on Chronic Emptiness

The findings from 99 included studies were categorised according to construct and key findings were extracted. The forty-four studies which focused on chronic

feelings of emptiness alone or in conjunction with another key word were analysed, then key findings for similar constructs including hopelessness and loneliness were analysed separately.

Difficulties in Defining Chronic Emptiness

A predominant finding of this review was the difficulty in understanding and defining the nature of chronic emptiness, and inconsistent findings regarding its relation to other symptoms of BPD. Studies investigating symptom clusters in BPD were highly variable in their results, theorising chronic emptiness was a component of: psychological process (Becker et al., 2006), affective instability (Benazzi, 2006), painful affect and defenses (Chabrol et al., 2002), disturbed relatedness (Sanislow et al., 2000), internally oriented criteria (Speranza et al., 2012), and self-other instability (Taylor & Reeves, 2007). These disparate results may be indicative of the absence of a working definition of emptiness in the field, and associated difficulties in measurement. Similarly, when investigating discriminative symptoms for a diagnosis of BPD and networks of symptoms, emptiness was often identified as an important symptom for distinguishing people with BPD from other samples (Conte et al., 1980; Nurnberg et al., 1987; Nurnberg et al., 1991; Southward & Cheavens, 2018). However, one study found that chronic emptiness was the least distinguishing factor of BPD (Johansen et al., 2004). The authors of this study noted that this result may be more reflective of the lack of definition of emptiness, and the difficulty in rating an internal experience that may have little behavioural manifestations, in comparison to symptoms such as unstable relationships. Given the large heterogeneity in diagnosis of BPD and significant co-morbidity using categorical approaches (Widiger & Trull, 2007), identifying chronic feelings of emptiness as a distinguishing feature of BPD has implications for future

screening and diagnosis. Two studies discussed the difficulty of defining chronic emptiness. One study suggested that people with BPD may have difficulty defining and articulating the experiences of emptiness (Rebok et al., 2015), while the other study found low correlations between chronic feelings of emptiness and other BPD symptoms, and postulated this may be due to the absence of a definition of chronic emptiness (Johansen et al., 2004). Only one recent study investigated the features of chronic emptiness (Price et al., 2019). This study reported on feelings of emptiness transdiagnostically and determined core features of emptiness include a sense of detachment from self and others, hollowness, aloneness, disconnection, and unfulfillment. Some studies examined the relationship of chronic feelings of emptiness as a construct to similar terms, with mixed findings. One study found no significant association between chronic feelings of emptiness and hopelessness or depression (Yen et al., 2009). However, another study found that there were high correlations between feelings of emptiness and feelings of hopelessness, isolation, and loneliness (although these correlations did not meet multicollinearity, suggesting the construct of emptiness was still distinct) (Klonsky, 2008). Overall, this points to a lack of cohesion in the field and a sense of confusion regarding not only the experience of emptiness, but its boundaries with related concepts.

Measurement of Chronic Emptiness Within Studies

In several studies, chronic emptiness was quantified by one item from a wider measure of all BPD symptoms, including structured clinical interviews. The UCLA loneliness measure was used to measure both loneliness and emptiness (Richman & Sokolove, 1992), despite some studies differentiating these concepts (Klonsky, 2008).

One scale providing some measure of emptiness is the Orbach and Mikulincer

Mental Pain Scale (OMMP), which aims to measure mental pain (Orbach et al., 2003). One factor of the OMMP is labelled emptiness, measuring the loss of subjective and personal meaning due to mental pain. The emptiness factor, however, only explains 2.3% of variance in the scale and the items have not been validated as individual measures of emptiness. As such, inferring severity of chronic feelings of emptiness from the OMMP may not accurately capture the experience of chronic emptiness in BPD.

Price and colleagues (2019) recently developed a transdiagnostic measure of emptiness. The resultant Subjective Emptiness Scale (SES) is a seven item self-report measure. Internal consistency of items were high across clinical samples of people with psychiatric disorders (.91-.93) and covariance analyses indicated a unidimensional construct which was able to discriminate people who experienced varying severity of emptiness. The scale included central features of emptiness as a "pervasive and visceral sense of detachment spanning intrapersonal, interpersonal, and existential domains of experience' which results in 'encompassing feelings of hollowness, absence from one's own life, profound aloneness, disconnection from the world, and chronic unfulfillment" (Price et al., 2019, p. 18). The development of this measure represents a significant contribution to the field, but as it is a transdiagnostic measure it requires validation within a BPD sample to test the symptom of chronic feelings of emptiness. Overall, the difficulties with defining and measuring chronic emptiness may partly explain the mixed findings within many reviewed studies, and points to further research aimed at elucidating the nature of chronic emptiness and the use of appropriate measures.

Age and Gender

The prevalence of chronic feelings of emptiness was found to be higher in

females with BPD compared to males (Hoertel et al., 2014), however a study of parent ratings of BPD in their male sons found that emptiness was reported for 97% of the male BPD group compared to 8% of the control group (Goodman et al., 2013). This study, however, did not compare genders and was reliant on parent report rather than self-report. It is not possible to provide a judgement of the effect of gender on chronic emptiness, and more study is needed in this area. One study found that chronic emptiness was more severe in older adults compared to younger adults with BPD (Morgan et al., 2013) and another has identified increased feelings of chronic emptiness in older adults compared to younger adults (Beatson et al., 2016). Several factors may influence this – firstly, more 'acute' symptoms tend to resolve more quickly while emptiness is more chronic (Zanarini et al., 2007). Perhaps once there is an absence of acute symptomology, chronic emptiness is more noticeable or may increase in severity. Secondly, older adults in this study had poorer social function, which possibly results from a sense of disconnection from others and a feeling of emptiness.

Detachment From Self and Others

The limited number of studies on emptiness as a disconnection or deficiency in relating to self and others was surprising given the theoretical import placed on this relationship. The strongest support for this model was found by Price and colleagues (Price et al., 2019) who proposed that transdiagnostic emptiness was a sense of detachment from interpersonal, intrapersonal and existential spheres. In terms of detachment from self, three studies linked chronic emptiness to identity disturbance, reflecting a detachment from sense of self. A qualitative study which asked for the life stories of people with BPD found an emergent theme of chronic feelings of emptiness relating to disturbances in self-identity (Ntshingila et al., 2016). This theme included

two subthemes – distorted self-image and lack of identity – resulting in chronic emptiness. One study explored identity diffusion within personality disorder presentations, and found it was associated with feelings of chronic emptiness (Taylor & Goritsas, 1994), while another study typified a subtype of people with BPD as the 'empty' type characterised by deficits in identity (Rebok et al., 2015). These studies suggest that chronic feelings of emptiness are the expression of an underlying diffuse identity, reflecting theoretical claims (Kernberg, 1984). In relation to detachment from others, one study reported that social dysfunction was associated with feelings of emptiness (Ellison et al., 2016). Other studies noted that chronic emptiness occurred most often when individuals with BPD were alone (Miskewicz et al., 2015) or during interactions with others in close social relationships (Stepp et al., 2009).

Course of Chronic Emptiness

Five studies presented results relating to the course of chronic feelings of emptiness in BPD. Zanarini and colleagues (1998a) found that feelings of chronic emptiness were experienced frequently and severely for people with BPD. They also found that when investigating symptoms of BPD over ten years follow-up, feelings of chronic emptiness took the longest time to remit at an average of 8-10 years compared to more acute symptoms (Zanarini et al., 2007). In a similar study, authors further found that over 16 years, chronic emptiness had relatively poor remission rates compared to other symptoms, and high recurrence rates (Zanarini et al., 2016). These studies suggest that feelings of emptiness are difficult to alleviate due to being a 'temperamental' symptom enduring over time rather than an acute symptom. Similarly, another longitudinal study aiming to identify the core clinical features of BPD found that after one year of treatment feelings of emptiness were chronic compared to more acute

symptoms, suggesting that chronic feelings of emptiness may represent a core underlying factor in BPD or is not targeted by current treatment (Meares et al., 2011). A further study found that in a cohort of people with BPD categorised into a younger age group (18-25) and older age group (45-68), older adults were more likely to report chronic feelings of emptiness (Morgan et al., 2013). The authors hypothesised that chronic emptiness may be more difficult to change as people age compared to symptoms like mood dysregulation. Overall, the studies focusing on the course of chronic feelings of emptiness reported it as slow to change over time, hypothesising it is a core problem for people with BPD. However, another factor in the chronicity of emptiness could be that it is not targeted in most treatments, and as such it remains untreated for a long period of time.

Chronic Emptiness, Impulsivity, Self-Harm and Suicide

Ten studies investigated behaviours which followed chronic feelings of emptiness. Both qualitative and quantitative studies supported chronic feelings of emptiness preceding impulsive behaviours. A qualitative study reported that women with BPD attempt to fill the 'void' they experience by acting impulsively (Ntshingila et al., 2016), while a longitudinal study found that impulsivity and self-harm mediated the relationship between chronic emptiness and days out of work over time, suggesting that chronic emptiness may underlie and result in behavioural symptoms of impulsivity including self-harm (Miller et al., 2018). A study in a sample of college students found that 67% of participants reported feelings of emptiness prior to engaging in self-harm behaviours (Klonsky, 2008). Another study supported these findings with a different college sample, reporting that chronic feelings of emptiness and identity disturbance were associated with a history of self-harm behaviour, and may be the motivation for

engaging in these maladaptive behaviours (Brickman et al., 2014). Overall, these studies may suggest that the void of emptiness is distressing and a common way to tolerate this distress is to engage in self-harm or impulsive behaviour.

Studies also reported a link between chronic feelings of emptiness and suicidal behaviours. One study hypothesised suicidal behaviours and suicide attempts are engaged in by people with BPD to relieve the tension of feeling empty inside (Becker et al., 2006). Supporting this hypothesis, studies have found a strong relationship between chronic emptiness and both suicidal ideation and behaviour (Klonsky, 2008; Trull & Widiger, 1991). In one study people with BPD who experience chronic emptiness, mood dysregulation and identity disturbance made up the largest proportion of people who had made more than three suicide attempts (Verkes et al., 1998). Another study found that the presence of chronic emptiness increased the odds of suicide attempts (Harford et al., 2019). It is possible that when self-harm and impulsive behaviours no longer relieve the distress of emptiness, suicidal ideation and behaviours arise.

Chronic Emptiness as Linked to Depressive Experiences

Seven studies investigated the relationship between chronic emptiness and depressive experiences. One study reported a moderate correlation between feelings of emptiness and depression (Klonsky, 2008), while another found that individuals endorsing chronic emptiness had significantly more severe depression than those who did not experience chronic emptiness (Johansen et al., 2004). Chronic emptiness was experienced frequently as a dysphoric affect for individuals with BPD (Zanarini et al., 1998a), and was significantly associated with a diagnosis of dysthymia (Trull & Widiger, 1991). Individuals with diagnoses of BPD and MDD had higher rates of chronic emptiness and suicide attempts than people who met diagnosis for BPD only

(Rippetoe et al., 1986). Two studies viewed depression in BPD as qualitatively different to that of MDD (Rogers et al., 1995; Westen et al., 1992). Borderline depression was characterised by chronic emptiness and self-condemnation (Rogers et al., 1995). Emptiness, rejection sensitivity, and dependency were positively associated with more severe depression in BPD which was also related to disturbances of self-concept (Westen et al., 1992).

Impact of Chronic Emptiness on Social and Vocational Function

Several studies discussed the impact of chronic feelings of emptiness on vocational and social functioning for people with BPD. One study hypothesised that chronic feelings of emptiness was an understandable response to a life of relational difficulties and impaired work function (Zanarini et al., 2016). A study by Ellison and colleagues (Ellison et al., 2016) found that people presenting for psychiatric treatment who endorsed the single chronic feelings of emptiness symptom had the poorest psychosocial outcomes – the highest number of days out of work and lowest social functioning – compared to groups with any other individual symptom of BPD. Groups with both chronic emptiness and impulsivity had missed more work in the last five years, and groups with chronic emptiness and anger had poorer social functioning compared to people presenting to care with no BPD symptoms. This supported results from a previous study which found that compared to both other personality disorder presentations and people with no personality disorder, people with BPD reported higher levels of chronic emptiness during social interactions with close relationships (Stepp et al., 2009). A recent study further found that chronic feelings of emptiness predicted days out of work or normal activities over a one year follow-up, suggesting that chronic emptiness may account for psychosocial dysfunction over time (Miller et al., 2018).

Interestingly, another study found that after investigating BPD symptoms within a community sample over three times points within 18 months, chronic feelings of emptiness were associated with less stressful life events in the preceding six months compared to more acute symptoms (Powers et al., 2013). This is perhaps a reflection of impaired social relationships and subsequent social isolation, leading to minimal stressful interpersonal events.

Treatment for Chronic Emptiness

Three studies discussed psychological treatment of chronic feelings of emptiness. A range of therapeutic modalities were used, including Supervised Team Management plus Sequential Brief Adlerian Psychodynamic Psychotherapy (Amianto et al., 2011), Systems Training for Emotional Predictability and Problem Solving (STEPPS) (Black et al., 2018), and Dialectical Behaviour Therapy (DBT) (Yen et al., 2009). Each of the studies found that following treatment chronic feelings of emptiness significantly decreased in BPD samples. The follow-up period of these studies ranged from three months to two years. Authors speculated that chronic emptiness may be alleviated due to an increase in mentalisation skills, decrease in idealising and devaluing patterns within relationships, and an increased capacity to tolerate ambiguity and ambivalence (Amianto et al., 2011). In the STEPPS study, identity disturbance and mood instability also decreased alongside chronic emptiness (Black et al., 2018). Within the DBT treatment, participants experiencing chronic emptiness at baseline (94% of the sample) improved over the three months of treatment, while participants who did not endorse chronic emptiness (6%) demonstrated statistically significant deterioration of depressive symptoms, dissociative symptoms, and general mental health (Yen et al., 2009). Authors postulated there may be two factors influencing the change in chronic

emptiness. Firstly, they speculated that the core skill of mindfulness in DBT targets feelings of chronic emptiness. Secondly, they noted the model within which DBT was practiced "offered a validating community to women" (Yen et al., 2009, p. 9) with high levels of engagement between participants and practitioners, which may have increased feelings of connection with others and self. It is important to note that there is as yet no causal empirical evidence that supports these hypotheses.

2.3.4 Similar Constructs

Hopelessness

Thirty-six studies reported on hopelessness or a combination of hopelessness and another keyword. Hopelessness was typically defined as a disconnection from meaning and disconnection from life (Marco et al., 2014; Marco et al., 2017). Eleven studies discussed the role of hopelessness in self-harm and suicidality. Overall, severity of hopelessness was associated with suicidal behaviours (Espinosa et al., 2009; Pérez et al., 2014; Soloff et al., 2002; Wedig et al., 2013) and in some studies predicted suicide attempts for people with BPD (Soloff et al., 2000). Several studies focused on feelings of hopelessness as a disconnection from or lack of meaning in life. Low meaning in life was associated with more suicidal ideation and attempts, and hopelessness was also positively associated with suicidal behaviours (Espinosa et al., 2009; Pérez et al., 2014; Soloff et al., 2002; Soloff et al., 2000; Wedig et al., 2013). Low meaning in life predicted hopelessness (García-Alandete et al., 2014), and meaning in life also moderated the relationship between previous suicide attempts and hopelessness (Marco et al., 2017). One study found that hopelessness mediated the relationship between BPD and suicide attempts (Chapman et al., 2005). For people who had attempted suicide, severity of hopelessness was higher for those who met diagnosis for BPD (Berk et al.,

2007). Within a BPD sample, individuals with a history of self-harm expressed higher severity of hopelessness compared to those without self-harm history (Stanley et al., 2001).

Several studies reported on the link between feelings of hopelessness and depressive experiences. Depression was found to predict hopelessness for people with BPD, and was mediated by a sense of meaning in life (Marco et al., 2014). Low meaning in life was correlated with feelings of both hopelessness and depression (Marco et al., 2015) and predicted both depression and hopelessness (García-Alandete et al., 2014). One study found people with comorbid BPD and MDD had more severe hopelessness compared to people with MDD only (Abela et al., 2003), and people with BPD had higher ratings of depression and hopelessness than people with depressive disorders (Fertuck et al., 2016). However, one study found that hopelessness was unable to distinguish adolescents with and without BPD, suggesting it is not a unique experience of BPD (Pinto et al., 1996). An additional study found there were no differences in hopelessness and depression between people with BPD and people with MDD (Horesh et al., 2003). Multiple studies reported on the change in hopelessness throughout treatment for BPD. Severity of hopelessness decreased for people with BPD following DBT treatment – including both intense and adapted DBT programs (Flynn et al., 2017; Hulbert & Thomas, 2007; Koons et al., 2001; McQuillan et al., 2005; Perroud et al., 2013), although one trial found DBT was not superior to Collaborative Assessment and Management of Suicidality treatment (Andreasson et al., 2016). Severity of hopelessness also decreased following Acceptance and Commitment Therapy group treatment (Morton et al., 2012) and cognitive therapy (Brown et al., 2004; Cottraux et al., 2009). One study found that severity of hopelessness did not

decrease following treatment with antipsychotic medication for three months (Villeneuve & Lemelin, 2005).

Loneliness

Eighteen studies discussed loneliness or a combination of loneliness and another keyword. Loneliness has been conceptualised as a "feeling of being alone" (Liebke et al., 2017, p. 1), which is a central feature within the network of BPD symptoms (Southward & Cheavens, 2018). One study reported that people with BPD perceive loneliness as an inherent trait, not a state, which reflects a feeling of disconnection with the world and can only be temporarily alleviated (Sagan, 2017). Among personality disorders, BPD had the strongest association with loneliness (Hengartner et al., 2014), and adolescents who self-harmed reported higher rates of loneliness compared to those who did not self-harm (Glenn & Klonsky, 2013). One study reported that loneliness, in addition to chronic emptiness, was a core factor of depression for people with BPD (Westen et al., 1992), while two other studies clustered chronic emptiness, loneliness and boredom as a discriminating factor of BPD (Nurnberg et al., 1987; Nurnberg et al., 1991). Loneliness was found to have high recurrence and low remission rates over both 10- and 16-years follow-up (Zanarini et al., 2016; Zanarini et al., 2007). People with BPD demonstrated higher dysregulation compared to healthy controls following presentation of attachment pictures which may induce loneliness, suggesting an intolerance of loneliness (Bernheim et al., 2018). Similarly, people with BPD demonstrated a higher intolerance to loneliness compared to people with dissociative or conversion disorders (Ohshima, 2001). One study reported that loneliness in BPD was related to poor social and relational function, but after controlling for these deficits loneliness was still high for people with BPD, suggesting there are multiple factors

which contribute to feeling lonely (Liebke et al., 2017). Feelings of loneliness may also be associated with deficits in facial emotion recognition and behavioural mimicry. Lower confidence in rating facial emotions has been associated with both higher levels of loneliness and higher levels of rejection sensitivity (Thome et al., 2016). For people with BPD with the highest scores of loneliness, behavioural mimicry – an important factor in fostering connection between people – was the lowest, suggesting the capacity or desire to connect with others may be impaired when people with BPD feel lonely (Hauschild et al., 2018).

Intolerance of Aloneness

Intolerance of aloneness broadly relates to the intolerable distress of being alone with one's own thoughts and feelings and an associated incapacity for solitude (Vardy et al., 2019). Overall findings indicate that people with BPD experience the feeling of aloneness more frequently and severely compared to individuals with neurotic disorders (Richman & Sokolove, 1992) and have an intolerance to being alone (Buchheim et al., 2008; Ohshima, 2001). A recent study developed a measure for the experience of being alone for individuals with BPD and they report the intolerance of this experience as a salient feature of the disorder (Vardy et al., 2019). Being alone accounted for 39% of aversive emotions (Stiglmayr et al., 2005) and triggered all BPD symptoms except self-harm (Miskewicz et al., 2015). Over ten years intolerance of aloneness was the slowest interpersonal symptom of BPD to remit and still declined less than other features of BPD (Choi-Kain et al., 2010). Interestingly, an article found that both intolerance of being alone and intolerance of relating to others were salient features of the experience for people with BPD (Vardy et al., 2019).

Alienation and Boredom

Three studies reported on feelings of alienation. Alienation was found to be a discriminating feature of BPD (Bell et al., 1988) and was a risk factor for development of BPD (Bornovalova et al., 2006). It was also associated with disturbed identity (Lenzenweger et al., 2012). Five studies reported on feelings of boredom or boredom in conjunction with chronic emptiness. Most of these studies were published when the symptom of chronic emptiness or boredom remained in the DSM-III. Boredom was found to be related to core identity diffusion (Taylor & Goritsas, 1994), and suicidal behaviour (Trull & Widiger, 1991). Boredom was also associated with feelings of depression (James et al., 1995; Rippetoe et al., 1986), however was not associated with feelings of shame (Scheel et al., 2013).

2.4 Discussion

This review sought to examine empirical literature and provide a detailed understanding of the symptom of chronic feelings of emptiness in BPD. It also aimed to identify similar constructs to chronic feelings of emptiness such as hopelessness, and provide clarification around the relationship between these experiences. A broad focus was used in this review – articles needed to be peer-reviewed, contain novel empirical data, and needed to have a focus on BPD or BPD symptoms. However, all articles that mentioned emptiness or a similar construct in their abstract and results or discussion were included, even if the main focus of the study was not on these experiences. This allowed an in-depth analysis within a field where chronic feelings of emptiness is often discussed tangentially and is not a common focus of articles. However, this also resulted in a wide array of study methodology and quality, and findings should be interpreted with caution until further research is conducted.

Overall, 99 articles met the inclusion criteria and quality assessment, and key findings were presented. The review identified a number of gaps within the literature, particularly relating to defining and measuring chronic feelings of emptiness. As such, findings extrapolated from this data should be interpreted with caution, as there are significant limitations with measurement within the field. Nevertheless, the included studies provide a good foundation of knowledge regarding chronic feelings of emptiness.

2.4.1 The Difficulty in Defining and Delineating Chronic Feelings of Emptiness

The available research on chronic feelings of emptiness demonstrated a difficulty in understanding the nature of chronic emptiness, defining the experience, and determining its importance to a BPD conceptualisation or diagnosis. Despite the inclusion of 44 studies discussing chronic feelings of emptiness, only one recent study investigated what chronic emptiness is and how it is experienced, although this was not exclusive to individuals with BPD but included all psychiatric diagnoses (Price et al., 2019). It is clear from included studies that it remains difficult to define and measure an absence of experience, and perhaps this has resulted in the reliance on single-item measures that may not adequately capture the true experience of chronic emptiness. Factor analyses differentially placed chronic emptiness with most other symptoms of BPD, perhaps a further indication of the absence of a definition of chronic emptiness. There were minimal personal accounts of people with BPD across the studies. Only three qualitative studies focused on individual experiences, with most other studies utilising prescribed questions which are often developed by clinicians or researchers and may not accurately reflect the experience of individuals with BPD. The lack of understanding about the nature of chronic emptiness may also contribute to the mixed

findings of chronic feelings of emptiness within the broader conceptualisation of BPD.

2.4.2 A Conceptualisation of the Cause and Effect of Chronic Feelings of Emptiness within BPD

Despite difficulties defining and delineating chronic emptiness, this review is able to provide a synthesis on the current understanding of chronic emptiness in the theoretical and empirical literature. Across differing theoretical frameworks, a common theme in the conceptualisation of chronic emptiness is that it results from a disconnection from the self and from other people. This is described differentially in terms of unstable object relations (Kernberg, 1968; Kernberg, 1975; Kernberg, 1967; Masterson, 1976; Masterson & Rinsley, 1975), an inability to develop soothing and holding introjects (Adler & Buie, 1979), a false self (Winnicott, 1974), a lack of personal identity (Caligor et al., 2018; Linehan, 1993; OPD Task Force, 2008), insecure attachments (Levy, 2005), invalidation and confusion about internal experiences (Fruzzetti et al., 2005) and deficits in mentalisation (Fonagy, 2000). These theories hypothesised the cause of emptiness is inconsistent responses from caregivers resulting in difficulties in knowing oneself and others. Empirical literature that focused on emptiness as a sense of detachment from self and others was not detailed enough to be conclusive, but provided some empirical indications that support these theories. In particular, Price and colleagues (Price et al., 2019) found a unidimensional construct of emptiness that was defined as a sense of detachment both from self and others, hollowness, aloneness, disconnection, and unfulfillment (Price et al., 2019). Qualitative narratives have begun to demonstrate in small samples that people with BPD may also associate feelings of chronic emptiness with identity disturbance (Ntshingila et al., 2016). Further, treatment that focuses on establishing a more coherent sense of identity and empathic responding

to others (e.g. mindfulness (Yen et al., 2009), mentalisation (Amianto et al., 2011)) also appears to decrease the severity of chronic emptiness, suggesting a possible link between chronic emptiness and disconnection from self and others.

The research was more conclusive on the effects of emptiness for people with BPD. Chronic emptiness was linked to several aversive outcomes including vocational and social function (Ellison et al., 2016; Miller et al., 2018), impulsivity, self-harm (Klonsky, 2008) and suicidal behaviours (Harford et al., 2019). A review of the relationship between emptiness and suicidal behaviour found that feelings of emptiness was among the most frequent affect experienced before suicide attempt and after non-fatal suicide attempts (Blasco-Fontecilla et al., 2013). It is possible that deficits in connecting with oneself and others leads to an intolerable sense of emptiness, which is avoided or alleviated by engaging in self-destructive behaviours. Likely, both the feelings of detachment from self and other people and the resultant behaviours impair both social and vocational functioning.

The experience of chronic emptiness has been conceptualised as a component of depression in BPD (Gunderson & Phillips, 1991; Kohling et al., 2015; Rogers et al., 1995). Depression has never been a criterion for meeting a diagnosis of BPD (American Psychiatric Association, 1980, 2013), but there is high occurrence of both reported depressive experiences and diagnosable depressive disorders including major depressive disorder (MDD) in BPD (Grant et al., 2008; Silk, 2010). There are also indications, however, that there exists a ‘borderline depression’ which is qualitatively different to the experiences of affective disorders (Cary, 1972). Current theoretical models purport that the experience of depression in BPD is intrinsically linked to an insecure and negative self-identity, which is exacerbated by dysregulation of emotion, anger, anxiety,

and importantly – emptiness (Cary, 1972; Kohling et al., 2015). Borderline depression is centred on these experiences of loneliness, anger, impaired self-concept and relationships rather than the characteristic feeling of guilt in MDD (Kohling et al., 2015; Leichsenring, 2004; Silk, 2010; Westen et al., 1992). Specifically, it is suggested a discriminating factor between borderline depression and unipolar depression is the experience of emptiness (Gunderson & Phillips, 1991). Borderline depression is hypothesised as a "feeling of isolation and angry demandingness rather than true depression" (Cary, 1972, p. 36) and represents a more dependent-anaclitic form of depression (Pazzagli & Monti, 2000). This is considered distinct from other depressive disorders and reflects an experience where a common characteristic is feelings of chronic emptiness.

The proposition that chronic emptiness is a component of 'borderline depression' still needs to be clarified in future research, but at the very least there is a positive association between chronic feelings of emptiness in BPD and severe depression (Rogers et al., 1995; Westen et al., 1992). Two studies which investigated the experience of depression in BPD found that a 'borderline' depression was associated with poor self-concept and a sense of 'void' or 'inner badness' (Rogers et al., 1995; Westen et al., 1992). These feelings of chronic emptiness and perhaps the experience of borderline depression may then result in impulsive behaviours including self-harm or suicidal behaviours to reduce the feeling of emptiness or depression (Brickman et al., 2014; Klonsky, 2008; Miller et al., 2018; Ntshingila et al., 2016). The literature in this area remains inconclusive, with recent research with participants with severe and recurrent depression indicating feelings of chronic emptiness are also an important component of their experiences (Rhodes et al., 2018).

Research on the cause and effects of chronic emptiness highlights the importance of increasing knowledge of this symptom. Specifically Brickman and colleagues (2014) suggests individuals who experience substantial feelings of emptiness should be identified and targeted for interventions, as they may be more likely to engage in maladaptive behaviours and may have a poorer functional prognosis.

2.4.3 A Difference in Connection – Separating Chronic Emptiness from Related Constructs of Hopelessness, Loneliness and Intolerance of Aloneness

There have been limited efforts to distinguish chronic feelings of emptiness from similar or related constructs. One study investigated the relationship between feelings of chronic emptiness and hopelessness, isolation, loneliness, uselessness, worthlessness, and grief before and after self-harm incidents with university students (Klonsky, 2008). It found high correlations between feelings of chronic emptiness and feelings of hopelessness, loneliness and isolation. The authors proposed that these four states all represent a low positive affect and low rates of arousal. Other studies included chronic emptiness, loneliness and hopelessness together as temperamental affective experiences of BPD (Zanarini et al., 1998a; Zanarini et al., 2016; Zanarini et al., 2007), considering them highly related symptoms of BPD.

Based on the reviewed literature, it seems that chronic feelings of emptiness may be distinguishable from similar constructs. We hypothesise that chronic feelings of emptiness is a sense of disconnection from both self and others, hopelessness is a sense of disconnection to meaning or life, loneliness is a sense of disconnection from the world and a feeling of being alone and intolerance of aloneness is the incapacity to be alone. All have a similar basis in a sense of disconnection or detachment but represent different types of disconnect. This hypothesis of emptiness as a sense of detachment and

disconnection from self and others echoes that of Price and colleagues (Price et al., 2019).

Studies which discussed feelings of hopelessness often viewed it as a disconnection from or lack of meaning in life (García-Alandete et al., 2014; Marco et al., 2014; Marco et al., 2015; Marco et al., 2017). Less meaning in life was associated with more suicidal behaviours. Interestingly, meaning in life – a sense of purpose to life – has been shown as a factor in decreased suicidal ideation (Kleiman & Beaver, 2013) and gratefulness towards life has been shown as a buffer between suicidal ideation and hopelessness (Kleiman et al., 2013). Perhaps a sense of hopelessness may reflect low meaning in life and a disconnection from life.

Studies focusing on loneliness in BPD discussed it as a sense of disconnection from others that people with BPD perceive as a sense of disconnection with the world (Sagan, 2017). Feelings of loneliness were associated with deficits in facial emotion recognition (Thome et al., 2016) and behavioural mimicry (Hauschild et al., 2018) – suggesting impairments in fostering connection with other people. Loneliness may both arise from a sense of social disconnection and perpetuate deficits in social interactions. Similarly, people with BPD demonstrated an intolerance to being alone and feelings of aloneness, but also experienced being in the company of other people as dysregulating (Vardy et al., 2019).

While we hypothesise that chronic emptiness, hopelessness and loneliness may be distinguishable from one another, this is based on limited data which has not explicitly investigated these differences. While Klonsky's (2008) research began the process of demarcating these experiences, further research is needed to investigate the differences in constructs and to test the hypothesis.

2.4.4 Treating the Chronically Empty: Hypothesising a Possible Treatment Focus

Chronic feelings of emptiness seems to be an affective symptom of BPD that is temperamental – meaning it takes significantly longer to remit compared to more acute symptoms (Zanarini et al., 1998a; Zanarini et al., 2007). This may be due to the nature of chronic emptiness itself, or it may be that most current treatments do not focus specifically on alleviating the symptom.

A limited number of studies discussed treatment for chronic feelings of emptiness. Those that did hypothesised that a reduction in chronic feelings of emptiness was related to an increase in mindfulness skills, mentalisation skills, and a decrease in patterns of idealisation and devaluation (Amianto et al., 2011; Yen et al., 2009). Yen and colleagues (2009) also considered the impact of validation from clinicians in fostering a sense of community and belonging to self and others. It may be that developing mindfulness skills in DBT within a supportive and safe environment fosters a sense of identity and purpose, and similarly mentalisation-based and transference-focused therapies focus on making sense of the internal world of individuals (Bateman & Fonagy, 2010), their self-representations (Levy et al., 2006), and their connections to others. We hypothesise that work on self-integration including strengthening an understanding of autobiographical history, personal preferences, and sense of self as a unique personality which is allowed to just ‘be’ may have a flow-on effect and reduce the severity of chronic emptiness. Further, a focus on increasing holding others in mind in addition to basic behavioural strategies may assist in developing social connection. This speculation of the possible treatment for chronic emptiness remains a preliminary hypothesis until research can be conducted testing this specific model.

2.4.5 Study Design and Methodological Limitations

Findings within this review are dependent upon our interpretation of available data. It is important to note that articles included in the review had a wide variance in both scope and quality. In considering the limitations of the field, this systematic review is also limited by the nature of studies reporting of chronic feelings of emptiness; in that findings regarding chronic emptiness were often presented tangentially to other main findings, and as such were often not interpreted at an in-depth level within studies. This overall trend and the large variance of study outcomes unfortunately precluded the use of meta-analysis.

Study quality within this area of research is also limited. Few studies stated their sampling procedure or justified their sample size, and reasons why eligible participants chose not to participate were rarely stated. While this is an important area of research, our findings should be interpreted with some caution due to the differences in quality of the included studies. Most studies included in the review presented cross-sectional data (n = 73). Although cross-sectional data is an efficient way to collect data at one time point, it does not allow an analysis of change over time or causal relationships, weakening the conclusions of these articles. However, the findings from longitudinal studies (n = 23) within the included articles were generally consistent with findings from cross-sectional findings.

Despite the importance of being able to identify individuals who experience significant feelings of chronic emptiness, there has historically been a lack of comprehensive methods to measure emptiness. This may reflect the difficulty in defining or measuring an absence of experience which has been described as a sense of ‘nothing’ (Cary, 1972; Rebok et al., 2015). Within included studies, there was a higher

proportion of studies utilising measures which were specific to a BPD sample (n = 49) or both specific measures and more general measures (n = 10), compared to general measures only (n = 39). This may have allowed for investigation into features and experiences that are specific to BPD, while also allowing an understanding of difficulties with chronic emptiness or a related construct that are not unique to BPD. However, a significant weakness of the included studies is that the majority of articles employed a single-item measure to quantify presence or severity of chronic feelings of emptiness or a related experience. Emptiness has typically been measured using one individual item from semi-structured interviews or diagnostic tools (Pfohl et al., 1997; Zanarini et al., 1989; Zanarini et al., 2003). This may not adequately capture the nature and severity of chronic emptiness and restricts generalisability of findings. Themes arising from the data in this review should be interpreted cautiously due to the limitation of single-item measurements. The recent development of the transdiagnostic Subjective Experience of Emptiness scale (Price et al., 2019) provides a good future direction for further studies which require a more thorough and in-depth understanding of feelings of chronic emptiness.

2.4.6 Implications for Future Research

The findings of this review support several areas of further research. First, there is a need to better understand the nature of chronic emptiness for people with BPD. Qualitative studies are needed to provide an in-depth account of the personal experience of chronic feelings of emptiness to support the development of better ways to measure or quantify chronic emptiness. Second, research in this area could expand on the recent work of Price and colleagues (Price et al., 2019) to validate their transdiagnostic measure of emptiness in a BPD sample or add an extension to this measure that is

specific to people with BPD. It may be of use to explore transdiagnostic research into emptiness for other presentations, such as chronic depression (Rhodes et al., 2018), eating disorders and substance use to further inform our understanding of and interventions for emptiness. This may be particularly useful in light of difficulties with categorical approaches (e.g. heterogeneity, co-morbidity and arbitrary diagnostic thresholds (Skodol et al., 2002b)) and the move towards more dimensional and transdiagnostic understanding of mental health. Third, once there is a more thorough understanding of chronic feelings of emptiness and a way to quantify its presence and severity, we may be able to test intervention models targeting chronic emptiness.

Despite the inclusion of chronic feelings of emptiness as a diagnostic marker for BPD, it has not been subjected to the same level of interrogation as other symptoms of BPD. This review provided a detailed analysis of literature regarding the construct of chronic feelings of emptiness. Results demonstrated that while there remains many gaps in our knowledge about chronic emptiness, it is clear that studies point to it as a signal symptom to consider in conceptualisation and treatment of BPD. Further studies are needed to provide a deeper understanding of chronic emptiness and its clinical significance in order to develop effective interventions.

3. Study Two.

A 1-year follow-up study of capacity to love and work: What components of Borderline Personality Disorder most impair interpersonal and vocational functioning?

This chapter has been published in the journal *Personality and Mental Health*.

Miller, C. E., Lewis, K. L., Huxley, E., Townsend, M. L., & Grenyer, B. F. S. (2018). A 1-year follow-up study of capacity to love and work: What components of borderline personality disorder most impair interpersonal and vocational functioning? *Personality and Mental Health, 12*(4), 334-344.

3.1 Introduction

3.1.1 Background

Achieving and maintaining good interpersonal relationships and vocational pursuits is considered core to mental health; as Tolstoy (1856) stated “One can live magnificently in this world if one knows how to work and how to love” (Troyat, 1967, p. 158). This was later reinforced by Freud who stated good mental health involves the capacity to love and work (Masterson, 1976). Recovery in Borderline Personality Disorder (BPD) is considered to involve several factors including clinical (remission of symptoms), social (maintenance of at least one close social relationship), functional (ability to work or complete studies) (Zanarini et al., 2010a, 2010b) and personal (an evolving and individual proces) factors. Social and functional components of recovery are referred to jointly as psychosocial function, and have been considered equivalent to global assessment of functioning (GAF) scores above 60 in longitudinal studies (Stone et al., 1987a).

Impairment of psychosocial function is a key barrier to recovery. Individuals with personality disorders are between three and seven times more likely than healthy controls to experience significant impairment in quality of social relationships and work, including reduced days able to work or complete normal activities (Lenzenweger et al., 2007). Low incomes and reliance upon government disability services are over-represented in the population, in addition to high rates and long periods of unemployment and difficulty in academic achievement (Skodol et al., 2002a; Winograd et al., 2008). Among employed individuals with BPD, is it estimated that an average 47.6 days of work are lost per year due to both absenteeism and presenteeism (Soeteman et al., 2008). Additionally, research has demonstrated symptoms of BPD

predict dysfunctional romantic relationships over time (Hill et al., 2008), and individuals with BPD report higher levels of emptiness, sadness, and anger in social interactions in comparison to individuals with other or no personality disorders (Stepp et al., 2009).

Improvement in personality disorder symptoms is associated with better functional outcomes for individuals with BPD (Skodol et al., 2005), and number of personality disorder symptoms at intake can predict functional outcome two years later, operationalised by GAF scores (Gunderson et al., 2006). Studies suggest symptoms may remit relatively quickly after commencement of psychological treatment, but psychosocial dysfunction persists for people with BPD (Skodol et al., 2005). In a cohort of 290 former inpatients with BPD, 74.1% had poor psychosocial function at admission (Zanarini et al., 2010a). Over ten years, 93% of the sample achieved remission of symptoms (no longer meeting DSM-III-R or the more stringent Revised Diagnostic Interview for Borderlines (DIB-R) criteria for two years follow-up), but only 50% achieved recovery (both symptom remission and adequate psychosocial function) (Zanarini et al., 2010b). This further supports the understanding that good psychosocial function is more difficult to achieve and sustain than symptomatic remission. There is a need to study psychosocial functioning more broadly, and expanding this area of research is also strongly supported by people with lived experience (Chanen, 2015; Ng et al., 2016). Indeed, economic evaluations point to the benefits of treatment not only in terms of financial benefits for the patient and savings to the health system, but also society gains from greater productivity and paying taxes (Meuldijk et al., 2017). In order to further develop treatments targeting function, a comprehensive understanding of what factors may contribute to persistent psychosocial impairment is required.

Although studies have reported a relationship between psychopathology and functional outcomes, the impact of symptomology on function requires further investigation.

Research examining psychosocial impairment has produced mixed results, with studies variously identifying dysphoric mood (Paris, 1987), affect dysregulation (Jovev, 2006), impulsivity (Links et al., 1990; Sio et al., 2011), suicidal behaviour (Mehlum et al., 1994), identity disturbance (Esguevillas et al., 2017; Modestin et al., 1998), and chronic emptiness (Ellison et al., 2016; Plakun, 1991). Recent efforts have focused on symptoms of identity disturbance and emptiness. Ellison and colleagues (2016) explored the influence of single clinical symptoms on impairment, with chronic feelings of emptiness evidencing the poorest psychosocial outcomes, highest number of days out of work, and lowest social function. Similarly, identity and sense of self predicted GAF scores over time (Esguevillas et al., 2017). Theoretically it has been suggested identity disturbance and emptiness underlie core components of BPD (Kernberg, 1967), and may be expressed by behavioural symptoms. Empirical research is still needed to understand this relationship.

3.1.2 Study Aims

The current study examined symptoms of BPD and their influence over 12 months on psychosocial function in a cohort receiving treatment for BPD. On the basis of previous research, we predicted the sample would reduce in symptom severity and improve in psychosocial function over the follow-up period. Based on previous theory, exploratory analyses were conducted to examine whether the relationship between emptiness and identity disturbance and function would be mediated by behavioural symptoms of BPD.

3.2 Method

3.2.1 Design

The current study utilises data from a project funded by New South Wales Department of Health; Project Air Strategy for Personality Disorders. Project Air Strategy implemented a stepped-care intervention for people with symptoms of personality disorder presenting to mental health services in acute crisis. The stepped-care intervention includes one month of orientation and care at presentation to emergency or inpatient units due to acute crisis; followed by follow-up by the health service or community practitioners for longer-term therapy and care. The stepped care model and Project Air Strategy has been described elsewhere (Grenyer, 2013; Grenyer, 2014).

3.2.2 Participants

224 consecutive patients presenting to mental health services for treatment of personality disorder symptoms were recruited. Diagnosis was indicated using a specific trained structured interview protocol of mental health outcomes and assessment (New South Wales Department of Health, 2001). Participants provided informed, written consent following Institutional Review Board and health service approval. Clinician-administered questionnaires were conducted at intake at the mental health service prior to treatment commencing. Participants were also interviewed after approximately 12 months (M = 11 months 15 days, SD = 4 months 3 days) by trained research psychologists, independently of treating practitioners. Of those initially recruited, 20 were lost to follow-up, three were excluded due to univariate outlying data and a further two were excluded due to invalid responses. The analysed sample comprised 199 participants (mean age 35.25 years, SD = 13.8, range 15 - 72; 72.9% female). Treatment was stepped, from initial engagement and diagnosis, to brief stepped-care intervention,

followed by referral to evidence-based psychological treatment in the community that followed recommendations from clinical guidelines (Grenyer, 2013; Grenyer, 2014). The follow-up period was naturalistic in study design, and while referrals were made to engage in psychological support, this was not controlled. Despite this,99.4% of participants reported they were engaged in psychological treatment throughout follow-up which was predominantly delivered by psychologists or psychiatrists. Further information on the outcomes has been previously published (Grenyer et al., 2018; Huxley et al., 2019).

3.2.3 Measures

Global Assessment of Functioning (GAF) and Social and Occupational Functioning Assessment Scale (SOFAS)

The GAF is a widely used tool to indicate psychological, social, and occupational functioning on a scale from 1-100 where a higher score reflects better functioning (Startup et al., 2002). The SOFAS is a similar single measure tool quantifying social and occupational functioning independent of the experience of mental health symptoms (Patterson & Lee, 1995).

World Health Organisation Disability Assessment Schedule (WHO-DAS 2.0)

Item H2 and H3 of the WHO-DAS 2.0 were used in the present study to measure vocational impairment, as the WHO-DAS 2.0 is sensitive to change when measuring function (Lenzenweger et al., 2007). Item H2 asks: *in the past 14 days, how many days were you totally unable to carry out your usual activities or work because of any health condition?*, item H3 asks: *not counting the days that you were totally unable, for how many days did you cut back or reduce your usual activities or work?* These items are frequently used in studies investigating impinged vocational function (Keely, 2014).

BPD Symptom Severity

The severity of DSM-5 BPD symptoms (American Psychiatric Association, 2013) were rated (1= *none of the time*, 6 = *all of the time*) to provide a dimensional understanding of symptom experience (Clarke & Kuhl, 2014). Internal consistency of the measure was good (Cronbach's $\alpha = .83$), however as this rating of severity was a developed measure, other psychometric properties are as yet unknown. Participants as a group were highly symptomatic; average number of DSM BPD symptoms met was 7.39/9 (*SD* = 1.88). Using the McLean screening instrument (Zanarini et al., 2003) with the conservative cut-off score of 7/10, 81.5% of the sample met caseness for BPD.

3.2.4 Data Analysis

Data screening and cleaning was conducted prior to analysis. All screening, cleaning and analysis was conducted using IBM Statistical Package for Social Sciences (Versions 23 – 25) and the PROCESS macro. Missing values analysis indicated data was missing completely at random (Little's MCAR $\chi^2 = 513.04$, $p = .238$). Expectation-Maximisation was used to impute missing cases for continuous variables (4.1%).

A series of analyses were used to test our hypotheses. Within samples analysis were conducted using Bonferroni corrections to analyse differences in symptom endorsement and severity between intake and follow-up. To test the hypothesis that psychosocial function would improve over the follow-up period, multiple linear regressions were conducted to understand the predictive capacity of BPD symptoms on GAF and SOFAS scores. Within samples methods were used to understand the changes to vocational function from intake to follow-up.

Linear modelling techniques were used to examine our hypothesis that identity disturbance and chronic emptiness at intake would best predict psychosocial function at

12 month follow-up. A multiple linear regression analysis was then conducted to understand the predictive capacity of BPD symptoms at intake on vocational outcome at follow-up. Further exploratory mediation modelling using PROCESS macro was conducted based on significant variables of the regression to understand the relationship between identity disturbance, emptiness and behavioural symptoms which contribute vocational impairment (Hayes & Rockwood, 2016). Indirect effects were calculated using a bias-corrected and accelerated bootstrapped confidence interval method, based on 10000 samples. Completely standardised indirect effect sizes were calculated (Miocevic et al., 2017).

3.3 Results

As expected, there was a significant decrease in number of endorsed BPD symptoms at intake (M = 8.16, SD = 2.08) compared to follow-up (M = 5.62, SD = 2.64), $t(182) = 12.74$, $p = .000$, 95% CI = [2.15, 2.94], with a large effect (Cohen's d = 1.07). There was a significant reduction in severity for all BPD symptoms between intake and follow-up (Table 3.1). The proportion of participants meeting caseness for a BPD diagnosis reduced from 81.5% at intake to 44.9% at follow-up. 44.2% of participants had a GAF above 61, and 46.2% had a SOFAS above 61 at follow-up, indicating good psychosocial function (Zanarini et al., 2005).

3.3.1 General and Social Functioning

Overall, severity of BPD symptoms at intake were predictive of GAF scores at follow-up, $R^2 = .124$, $F(198) = 2.97$, $p = .003$, with frequency of self-harm ($\beta = -.148$, $p = .044$), chronic emptiness ($\beta = -.248$, $p = .009$) and mood dysregulation ($\beta = .319$, $p = .002$) individually predictive of GAF scores. Severity of BPD symptoms at intake also predicted SOFAS scores at follow-up, $R^2 = .089$, $F(198) = 2.02$, $p = .039$, where chronic

emptiness (β = -.191 p = .048) and mood dysregulation (β = .327, p = .002) were individual predictors.

3.3.2 Vocational Functioning

There was a significant decrease in total days out of work from intake (M = 6.13, SD = 5.05) to follow-up (M = 3.07, SD = 4.00), t(198) = 6.81, p = .000, CI = [2.17, 3.95], with a medium effect (Cohen's d = 0.67). There was also a significant decrease in days of reduced usual activities or work between intake (M = 6.33, SD = 4.83) and follow-up (M = 3.11, SD = 3.73), t(198) = 8.04, p = .000, CI [2.42, 4.00], with a medium effect (Cohen's d = 0.75). Despite the overall improvement of the sample in vocational function, there remained a large range (0-14 days) and high variance at follow-up for both reduced days of work (SD = 3.73) and total days out of work (SD = 4.00). We sought to further understand which BPD symptoms at intake were associated with function at follow-up. As outlined in Table 3.2, total days out of work at follow-up was positively correlated with self-harm and suicidality, impulsivity, anger, paranoid ideation, and chronic emptiness.

Table 3.1

Differences in Symptom Severity on BPD Items Between Intake and Follow-Up Data Using Paired Sample T-Tests

BPD symptoms	**Response range**	**Responses *M* (*SD*)**		**df**	**t**	***p***	**95% CI**	**Effect size (Cohen's d)**
		Intake	Follow-up					
Real or imagined abandonment	(1-6)	3.20 (1.91)	2.20 (1.64)	198	6.60	.000	[0.71, 1.31]	0.56
Unstable relationships	(1-6)	3.62 (1.69)	2.01 (1.48)	198	12.12	.000	[1.35, 1.87]	1.01
Identity disturbance	(1-6)	3.20 (1.83)	2.54 (1.75)	198	4.74	.000	[0.39, 0.93]	0.37
Impulsivity	(1-6)	3.67 (1.59)	2.57 (1.59)	198	8.00	.000	[0.83, 1.37]	0.69
Self-harm or suicide	(1-6)	1.77 (1.26)	1.27 (0.86)	198	5.63	.000	[0.32, .067]	0.46
Mood dysregulation	(1-6)	3.84 (1.52)	2.79 (1.57)	198	7.99	.000	[0.79, 1.32]	0.68
Chronic emptiness	(1-6)	3.98 (1.51)	2.90 (1.66)	198	8.16	.000	[0.82, 1.34]	0.68
Anger	(1-6)	3.39 (1.53)	2.32 (1.32)	198	9.49	.000	[0.85, 1.30]	0.75
Paranoid ideation	(1-6)	3.54 (1.29)	2.62 (1.37)	198	8.40	.000	[0.71, 1.14]	0.69

Table 3.2

Zero-Order Correlations for Demographic Variables and BPD Symptoms at Intake and Days Out of Work at Follow-Up

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Real or imagined abandonment	-													
2. Unstable relationships	.39**	-												
3. Identity disturbance	.27**	.21**	-											
4. Impulsivity	.32**	.44**	.36**	-										
5. Self-harm or suicide	.09	.14	.26**	.20**	-									
6. Mood dysregulation	.43**	.43**	.38**	.53**	.19**	-								
7. Chronic emptiness	.32**	.26**	.62**	.39**	.34**	.44**	-							
8. Anger	.43**	.51**	.33**	.49**	.20**	.66**	.36**	-						
9. Paranoid ideation	.33**	.32**	.48**	.41**	.24**	.45**	.42**	.44**	-					
10. Age (intake)	-.26**	-.22**	-.20**	-.23**	-.17*	-.44**	-.22**	-.27**	.21**	-				
11. Gender	.12	.10	.12	.07	.15*	.02	.17*	.18*	.10	-.10	-			
12. Relationship status (intake)	-.19*	-.18*	.00	-.16*	-.08	-.13	-.18*	-.11	-.18*	.28**	-.04	-		
13. Days out of work (follow-up)	.08	.11	.07	.21**	.23*	.01	.17*	.16*	.17*	.04	.06	-.10	-	
14. Days of reduced work (follow-up)	-.01	-.02	.06	.06	.10	.03	.09	.01	-.02	.04	.10	-.08	.26**	-

Note – n = 199. *p<.05. **p<.01. Gender (0 = male, 1 = female) and relationship status (0 = not in a relationship, 1 = in relationship).

The relationship between BPD symptoms and days out of work was examined further. A multiple linear regression was conducted with BPD symptoms as independent variables and number of days out of work at follow-up as the dependent variable. Age, gender, and relationship status were included in the model to account for any co-varying effects (Table 3.3). The overall model predicting role impairment days was significant, R^2 = .179, F(12, 155) = 2.591, p = .004.

3.3.3 Serial Mediation Analysis

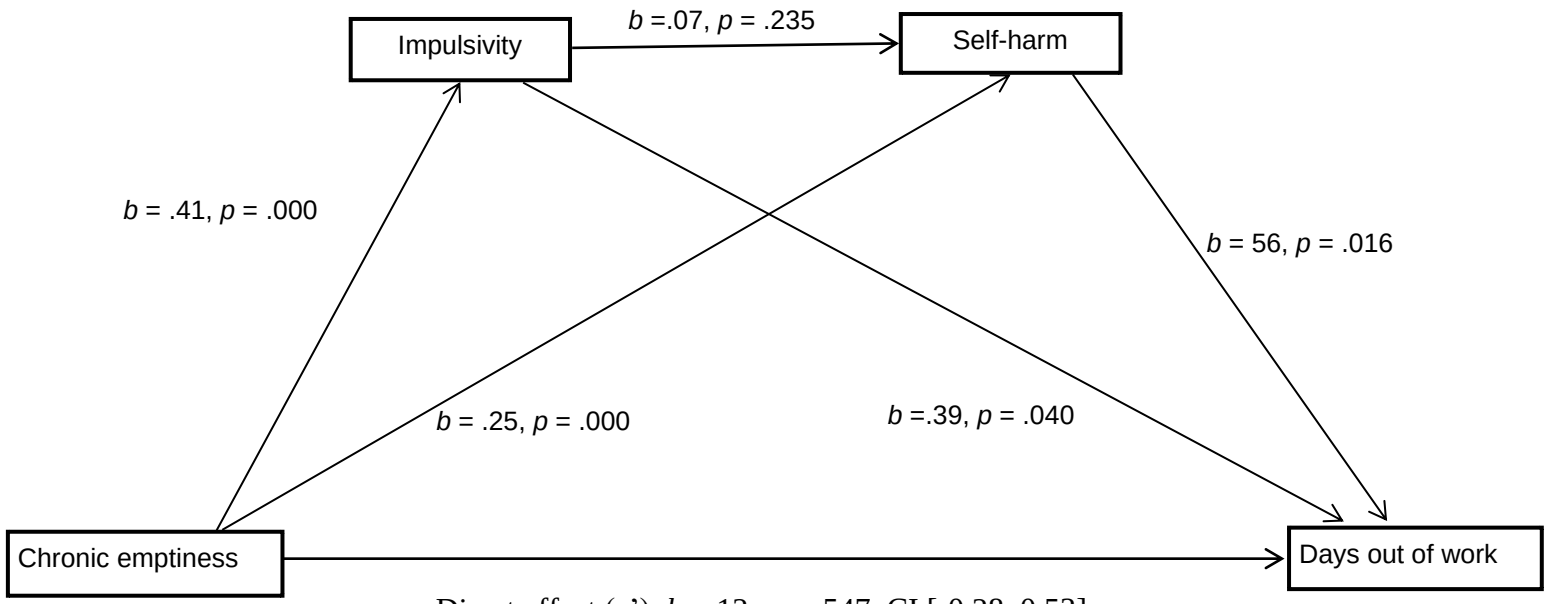
Exploratory models were tested to investigate the relationship between identity disturbance, emptiness, behavioural symptoms and days out of work. The identity disturbance model was not significantly predictive (Appendix 5). Models testing the relationship between impulsivity and days out of work mediated by chronic emptiness and self-harm, and the relationship between self-harm and days out of work mediated by chronic emptiness and impulsivity were significant, but only demonstrated a partial mediation indicating there were likely other indirect effects contributing to the model (Appendix 5). The best fitting serial multiple mediator model includes chronic emptiness mediated by impulsivity and self-harm, R^2 = .079, F(3, 195) = 5.66, p = .001 (Figure 3.1). The model shows a significant indirect effect of chronic emptiness on days out of work, as mediated by impulsivity and self-harm, *ab* =.12, CI [0.05, 0.19]. The direct effect of chronic emptiness on days out of work became non-significant when accounting for impulsivity and self-harm, *c'* = .12, p = .547. The total effect of the model was significant, c = .44, p = .019. Overall, these findings are consistent with previous theoretical models that suggest in individuals with BPD, emptiness and other behaviours impact on vocational functioning.

Table 3.3

Multiple Linear Regression Predicting Follow-Up Days Out of Work by Intake BPD Items and Demographic Variables

Variable	**B**	**β**	***t***	***p***	**CI**
Age	.02	.07	.82	.411	[-0.03, -0.07]
Gender	-.33	-.04	-.48	.635	[-1.72, 1.05]
Relationship status	-.16	-.02	-.21	.835	[-1.66, 1.34]
Real or imagined abandonment	-.01	-.00	-.03	.975	[-0.38, 0.37]
Unstable relationships	.11	.05	.49	.623	[-0.33, 0.55]
Identity disturbance	-.57	-.26	-2.42	.017*	[-1.04, -0.11]
Impulsivity	.48	.19	2.00	.047*	[0.07, 0.96]
Self-harm or suicide	.54	.17	2.09	.039*	[0.28, 1.04]
Mood dysregulation	-.73	-.27	-2.32	.022*	[-1.35, -0.11]
Chronic emptiness	.62	.24	2.17	.031*	[0.05, 1.19]
Anger	.40	.15	1.40	.165	[-0.17, 0.98]
Paranoid ideation	.49	.16	1.69	.093	[-0.08, 1.07]

Note - CI = 95% confidence interval, *significant at $\alpha = .05$



Direct effect (c'), b =.12, p = .547, CI [-0.28, 0.53]
Indirect effect (ab), b = .32, CI [0.13, 0.51]*
Total effect (c), b = .44, p = .019, CI [0.07, 0.81]*
Completely standardised indirect effect of X on Y, ab = .12, CI [0.05, 0.19]
*p < .05

Significant indirect pathways:
Chronic emptiness → impulsivity → days out of work b = .16, CI [0.03, 0.12]
Chronic emptiness → self-harm → days out of work b = .14, CI [-0.03, 0.28]
Chronic emptiness → impulsivity → self-harm → days out of work b = .02, CI [-0.09, 0.04]

Figure 3.1 *Model of Intake Severity of Feelings of Chronic Emptiness as a Predictor of Follow-up Role Impairment Days, Mediated by Intake Severity of Impulsivity and Self-harm.*

3.4 Discussion

This study aimed to examine what components of BPD most impair interpersonal and vocational functioning over time. We analysed data of 199 individuals who presented to community health for treatment for BPD over 12 months.

In line with our first hypothesis, the overall sample improved significantly both on symptom and psychosocial function measures. The average number of BPD symptoms endorsed reduced from 8.16 to 5.62 and there was a 36.6% reduction in number of participants meeting caseness for BPD from intake to follow-up. The severity of these symptoms decreased significantly across the sample. The effect sizes for the outcomes at 12 months on BPD symptom improvement (d = 1.07) was highly similar to published studies. For example, McMain and colleagues (2009) reported the mean 12-month effect size of symptom change on the Zanarini Rating Scale total score of 1.13. This suggests that the change in our sample is similar to previously studied samples of individuals with BPD (Gunderson et al., 2011; Zanarini et al., 2010b, 2012). There was also a significant decrease in total days out of work and reduced days of work at follow-up, and almost half the sample had scores above 60 on GAF (44.2%) and SOFAS (46.2%), indicating good psychosocial function.

We investigated which symptoms at intake predicted function at follow-up and hypothesised severity of identity disturbance and chronic emptiness would predict psychosocial function over time. Overall, severity of BPD symptoms at intake predicted both GAF and SOFAS scores at follow-up, indicating an effect of psychopathology at intake on later vocational and social function. These effects were primarily driven by chronic emptiness, mood dysregulation, and self-harm, suggesting these symptoms impact most on general functioning.

We explored the effect of symptoms at intake on days out of work at follow-up. Severity of chronic emptiness, identity disturbance, mood dysregulation, impulsivity and self-harm at intake were all predictive of impaired vocational function at follow-up in the main model. It is interesting that single correlations however did not always show the same pattern. This is not unusual in large studies of this kind, and further studies are needed to see if these findings are replicated in different samples. This supported our hypothesis that both identity disturbance and chronic emptiness are predictive of psychosocial impairment over time, but indicated there were additional contributing symptoms.

Exploratory analyses were conducted to understand the predictive capacity of several models; identity disturbance and days out of work, chronic emptiness and days out of work, both mediated by behavioural symptoms and lastly behavioural symptoms and days out of work mediated by chronic emptiness. To our knowledge, this is the first study to investigate how BPD symptoms relate to each other in their contribution to days out of work. The findings indicate a significant relationship between severity of chronic emptiness at intake and days out of work at follow-up, which was mediated by both severity of impulsivity and frequency of self-harm (Figure 3.1). Surprisingly, mediation models explored with identity disturbance as a predictor were non-significant. It seems behaviours like impulsivity and self-harm may not be directly driven by identity disturbance, but more likely are related to feelings of emptiness. This is perhaps reflective of the 'cognitive' nature of identity disturbance characterised by thoughts about the self, compared to the 'affective' experience of chronic emptiness (Zanarini et al., 2016). It may be the case that the feeling of chronic emptiness is so pervasive that it spurs compensatory actions, whereas identity disturbance may not

transfer directly to behavioural symptoms. This may relate to previous theoretical indications that identity disturbance manifests as the feeling of emptiness, but a more in-depth focus is needed to confirm this (Kernberg, 1967).

The relationship found between emptiness and impulsivity suggests individuals with BPD may attempt to reduce inner experiences of emptiness by engaging in impulsive behaviours such as substance use or risky behaviour. This has previously been documented theoretically (Callahan, 1996) and our study provides some empirical indication of this relationship. Our finding of the association between emptiness and self-harming behaviours supports previous qualitative and quantitative studies, reporting chronic emptiness as the most common affective state for individuals with BPD before self-harm or suicidal behaviours (Blasco-Fontecilla et al., 2013; Brickman et al., 2014). Klonsky (2008) found that feelings of emptiness were more strongly related to self-harm and suicidal behaviour than other BPD symptoms. Our findings add to this literature, suggesting feelings of chronic emptiness may underlie and contribute to both impulsivity and self-harming behaviour.

Our last finding in the model was that self-harming behaviours impact upon days out of work. Self-harm has previously been associated with poor social, study and work outcomes (Bagge et al., 2004). Individuals with BPD who expressed intentions of self-harm and suicidal ideation at intake were likely to remain functionally impaired after one year in an outpatient program (Wilberg, 1999). Similarly, hospital patients with BPD with suicidal behaviours consistently experienced poorer levels of function in comparison to non self-harming individuals with BPD (Mehlum et al., 1994). Attempts to understand the mechanisms underlying self-harm suggest these behaviours are often an impulsive consequence of emotional regulation difficulties (Black et al., 2004;

Chapman et al., 2006). Our findings further suggest that feelings of chronic emptiness may contribute to self-harming behaviours.

Taken as a whole, we suggest that impulsivity and self-harm may act as external dysfunctional manifestations of the internal distress of chronic emptiness. These external behaviours then seem to interfere with treatment outcomes in the domain of days out of work - meaning it was harder for these participants to work, study or maintain usual duties compared to others in the sample.

Although addressing gaps within the body of BPD literature, the present study has several limitations. First, there was limited data on social relationships and function at both intake and follow-up time points, and type of employment or study was not collected. These variables would enrich the understanding of psychosocial function, and could be a focus of future studies. Second, the ratings of symptom severity, like all Likert scales, may be influenced by contextual factors, such as hoping to obtain enhanced care from the interviewer or alternatively show gratitude for care provided. The assessment methods used were unable to distinguish between self-harm with or without an attempt to die, and further studies should aim to elucidate these factors to understand whether they contribute individually or as one factor to psychosocial function. The mediation model tested here was limited by a small number of variables, future research would benefit from a wider range of predictors. Furthermore, given symptoms of BPD were all measured cross-sectionally, is it not possible to conclude that chronic emptiness is the precipitant leading to impulsivity and self-harm. Despite the good reliability of WHO-DAS 2.0 and its use in outcome studies, we did not have additional measures of functional outcome to compare, which would be helpful in future research. Future research would also benefit from more continuous measures of

vocational functioning assessed over longer periods of time. Further, GAF scores were made by a single trained rater, meaning inter-rater reliabilities were not available. Finally, the findings relate to individuals in treatment over time for borderline personality disorder; future studies may investigate comparison samples in or out of treatment.

Despite the limitations, this study expands our understanding of factors that may make it particularly hard to overcome BPD . Future studies should aim to replicate this study with more comprehensive measures. Using measures which account for the past year of vocational functioning would provide a more in-depth understanding in this area. Similarly, further studies are required to understand the experience of emptiness as a significant factor in psychosocial function. These findings may contribute to the improvement of interventions aimed towards increasing the capacity to love and work.

4. Study Three.

Understanding chronic feelings of emptiness in Borderline Personality Disorder: A qualitative study

This chapter has been accepted for publication in the journal *Borderline Personality Disorder and Emotion Dysregulation.*

4.1 Introduction

4.1.1 Background

Borderline personality disorder (BPD) is characterised by pervasive distress and dysfunction in self and interpersonal spheres (American Psychiatric Association, 2013; World Health Organisation, 2018). Within both categorical and dimensional models of classification, chronic feelings of emptiness is included as a symptom of BPD. In the alternate model of diagnosis in the Diagnostic and Statistical Manual, Fifth edition (DSM-5), chronic emptiness is understood as a component of unstable self-identity alongside self-criticism and dissociative experiences (American Psychiatric Association, 2013). Historically there has been sparse empirical research into chronic feelings of emptiness (Blasco-Fontecilla et al., 2013) – perhaps due to the perceived difficulty in defining and measuring what is assumed to be an absence of experience, and the focus on more acute symptomology. However, there have been recent efforts to increase the understanding of chronic emptiness, with researchers defining it as comprising a feeling of detachment and disconnection from both self and other people (Miller et al., 2020).

Chronic feelings of emptiness are significant to the conceptualisation, course and outcomes of BPD. Theoretical models have linked the experience of chronic emptiness to deficits in self- and object-representations, resulting in a diffuse or unstable identity and disconnection from other people (Buie & Adler, 1982; Caligor et al., 2018; Kernberg, 1984). Biosocial models propose that individuals with BPD experience emotional sensitivity and reactivity, in addition to deficits in regulating intense emotions. These models suggest the inability to understand and tolerate internal experiences at times can lead to individuals inhibiting any emotional experience, and an associated feeling of emptiness inside (Fruzzetti et al., 2005; Linehan, 2018). It is

hypothesised that people with BPD may engage in maladaptive behaviours to 'fill up' the emptiness they experience as distressing (Miller et al., 2018) and qualitative accounts of women with BPD highlight the relationship between chronic feelings of emptiness and identity disturbance (Ntshingila et al., 2016). Feelings of chronic emptiness have been associated with aversive experiences and poor outcomes over time. Chronic emptiness has been linked with impulsivity (Miller et al., 2018), self-harm (Brickman et al., 2014; Klonsky, 2008), and suicidal behaviour (Harford et al., 2019) and is predictive of impaired function both socially and vocationally (Ellison et al., 2016; Miller et al., 2018). Chronic emptiness has been considered one of twelve temperamental symptoms of BPD (alongside other predominant symptoms e.g. chronic depression, feelings of helplessness and hopelessness, abandonment fears), which compared to more acute symptoms (e.g. affective instability, self-injury, unstable relationships) are slow to resolve over time with low remission and high recurrence rates over 16 years (Zanarini et al., 2016).

Although research into chronic emptiness is beginning to develop an understanding of the aetiology, features, and impact of chronic emptiness in BPD, there are still important gaps in the field. Firstly, there remains no consensus on the phenomenological experience for people with BPD. While chronic emptiness emerged as a theme of life stories for women with BPD (Ntshingila et al., 2016), there have been no studies to the authors' knowledge specifically trying to understand the nature of chronic emptiness in BPD. Secondly, the available data remains unclear on the boundaries between chronic emptiness and related constructs. Studies have suggested there may be distinguishable features of chronic emptiness, hopelessness, loneliness and depression (Klonsky, 2008; Kohling et al., 2015; Miller et al., 2020), however no

studies have explicitly attempted to differentiate these experiences by asking people with lived experiences of BPD. To capture the phenomenological experience of chronic emptiness, there is a need for qualitative accounts of people with lived experiences of chronic emptiness in BPD.

4.1.2 Study Aims

To address the gap in the research, this research aims to capture the phenomenological experiences of chronic emptiness for individuals with BPD. Specifically, the research aims to identify common experiences of chronic feelings of emptiness for people with BPD, understand cognitions, emotions and behaviours linked to emptiness, and clarify the differences between chronic emptiness and related experiences.

4.2 Method

4.2.1 Participants

Selective sampling methods identified participants suitable for this study from those enrolled in a larger ongoing longitudinal study, which is described elsewhere (Miller et al., 2018). In brief, participants have been followed with phone interviews every nine months since participating in interventions following presentation to health services. Participants who had endorsed feeling chronically empty ‘a good bit of the time’ or more in the past fortnight when asked about symptoms of BPD in at least one previous interview were invited to participate. Forty-one participants were contacted to participate in the study. Twenty were deemed uncontactable following unsuccessful contact attempts, five participants declined to participate, one participant consented but was uncontactable for the interview. Fifteen participants completed the study, and all

interviews were analysed. All participants gave explicit consent following Institutional Review Board approval.

4.2.2 Procedure and measures

Participant's interview included administration of the BPD component of the Structured Clinical Interview for DSM-5 (SCID-II) and a semi-structured interview regarding common experiences, cognitions and behaviours and related experiences of chronic emptiness (see Appendix 7). Interviews were conducted by the first author. Some participants had previously been interviewed by the author for their participation in the ongoing longitudinal study described above. There was no other relationship between participants and interviewer. Interviews lasted approximately 30 minutes and were conducted via phone, then audio recorded, transcribed verbatim and entered into NVivo 12 Plus for analysis.

Severity of Chronic Emptiness

Participants were asked to rate 'how often have you felt chronically empty in the last two weeks?' on a scale of 1 (none of the time) to 6 (all of the time).

Structured Clinical Interview for DSM-5 (SCID-II), BPD section

The SCID-II (First et al., 1997) was utilised to determine presence of BPD symptoms. The SCID-II is a semi-structured interview for personality disorders with questions based upon DSM-5 symptoms with satisfactory internal consistency (Maffei et al., 1997). To reduce participant burden, only the questions of the BPD section of the SCID-II were asked.

4.2.3 Data analysis

A template analysis approach was utilised for qualitative transcripts, underpinned by a critical realism ontological approach which explores lived experiences

to interpret and make meaning of underlying mechanisms or phenomena (Terry et al., 2017). Template analysis represents a codebook approach to thematic analysis which combines the qualitative philosophy of reflexivity and a more structured technical approach of coding (Braun et al., 2019). This approach was chosen given the flexibility of the method, allowing the use of both inductive and deductive knowledge to develop in-depth explanations and meaning (Braun et al., 2019; Fereday & Muir-Cochrane, 2006; Roberts et al., 2019). This enabled the use of some apriori themes to guide researcher focus in an area without significant existing research, while also allowing the phenomenological experience of individuals to shape and develop the coding (Crabtree & Miller, 1992). Accordingly, an initial codebook was developed from the literature that contained possible codes. Five transcripts were studied by one researcher in an iterative process that resulted in revised codes and new inductive codes emerging from the interviews. Following this, a second researcher coded five transcripts independently using the code manual, then codes were discussed and refined between researchers until agreement was achieved. The remaining transcripts were analysed using this codebook, with further revision of the codebook where necessary following discussion between researchers. After 15 interviews were analysed, no new information or themes were emerging from the data, and it was decided further recruitment and interviews were not necessary. Research seeking to understand the experience of individuals is shaped by researchers' own experiences (Willig & Rogers, 2017), and a reflexive process was used throughout data analysis including the independent analysis of some transcripts and discussion between researchers.

4.3 Results

4.3.1 Participant Demographics and Clinical Characteristics

In the final sample of 15 participants, the mean age was 37.42 (*SD* = 12.35, range = 24-63 years), and 80% of the sample were female (n = 12). All participants had sought treatment from a psychologist, psychiatrist or both in the past two years. The average rating of chronic emptiness over the past fortnight was 3.4 (*SD* = 1.68, range = 1-6). Demographic and clinical information is provided in Table 4.1.

Table 4.1
Demographic and Clinical Variables of Participants

Variable		Number of participants (%)
Employment	Full-time	6 (40)
	Part-time	2 (13.3)
	Disability pension	3 (20)
	Dependent on others	1 (6.7)
	Caring for others	1 (6.7)
	Unemployed	1 (6.7)
	Temporary benefit	1 (6.7)
Relationship status	Single	7 (46.7)
	Married	4 (26.7)
	In a relationship	3 (20)
	Separated	1 (6.7)
Academic qualifications	Post-high school degree	6 (40)
	Post-high school diploma	6 (40)
	High school graduate	1 (6.7)
	Did not graduate high school	1 (6.7)
	Did not respond	1 (6.7)
Chronic emptiness in past fortnight	None of the time	3 (20)
	A little of the time	1 (6.7)
	Some of the time	4 (26.7)
	A good bit of the time	3 (20)

Most of the time	2 (13.3)
All of the time	2 (13.3)

Following administration of SCID-II, 93.3% of the sample (n = 14) currently met criteria for five or more symptoms of BPD. Participants most commonly endorsed abandonment fears (93.3%), affective dysregulation (93.3%), identity disturbance (80%) and chronic emptiness (80%). One participant endorsed three symptoms of BPD, however had previously met threshold for a diagnosis and three participants noted they did not currently experience feelings of chronic emptiness. These participants were able to reflect on their past experiences.

The four participants who endorsed the highest severity (most or all of the time) of chronic emptiness were all single, not currently employed and had an average age of 50 years. The four participants who endorsed the least severe emptiness in the past fortnight were all in a relationship or married, and were in part- or full-time employment or caring for others. The average age of these participants was 31 years.

4.3.2 Identifying Common Experiences of Chronic Feelings of Emptiness for people with BPD

Difficulties Describing the Phenomenon of Chronic Emptiness

Typically, participants found it difficult to articulate the experience of chronic emptiness to the interviewer, however, many participants were able to think of a metaphor for how chronic emptiness feels – see Table 4.2. These metaphors were able to provide a rich understanding of the nature of chronic emptiness.

Table 4.2

Metaphors for the Experience of Feeling Chronically Empty

219064	*So, I guess, emptiness is like an overcast day where it's − but it's a chill on the wind, but it's not aggressively windy. Um, it's just, you know, you can't get warm, um, and you can't, sort of, find a nice warm spot everywhere you go, whether it's, like, out in the open, or under, you know, not being under a tree or anything. It's just like, just like constantly cold. But it's not raining or miserable weather. It's just sort of overcast and a bit chilly.*
219065	*It's just your kind of very robotic and very, like − there is no meaning or purpose, I guess, would be my definition of it.*
219074	*Oh dear, it's a black hole… Um, but I guess it's that drowning, you know, drowning.*
219088	*It's like wind inside a tin can… like you're the tin can.*
229070	*Um, um... Mmm. Like a stone that hasn't been shaped into a rock.*
259029	*Um, nothingness. Nothingness as in no sense of being. Um - - - like, I suppose, like, with the cosmos, like a black hole or something. I suppose, like, um, there's no sense of time. What do you call it? You know how the astronauts, when you see them walking around in space and there's no gravity? That sense. The sense of not being able – the sense of not, of no, of no – the sense of weightlessness probably or – I don't know, I don't know.*
259090	*Um, I suppose like just a depressing, empty swimming pool. Like a concrete swimming pool with, like, a little bit of water and lots of mould... Yeah. Like not one that people skate in.*

Note – Metaphors were prompted by the question "Can you think of a metaphor that describes how you've experienced feeling empty inside?"

Sense of Nothingness, Numbness and Disconnection From Self and Others

Participants largely defined feelings of chronic emptiness as a sense of nothingness or a feeling of numbness. #219132 *"Numb. It reminds me of a dead leg, kind of. Like, the sensation of the fuzziness is there."* #249020 remarked *"It's like being in a dark room. And you're just sitting in the middle of a completely dark room. And there's nothing."* Participants likened feelings of chronic emptiness to a feeling of disconnection from themselves. This included feeling they have no identity and feeling

like their identity is unstable. For participants who described emptiness as an absence of self, they reported it was a sense of not feeling like they are a person. #259029 remarked *"It's like a sense of not-being, like because I'm no being, a sense of no body… to me, identity means you're a person, to me emptiness is not a person. When I feel like there's some emptiness I have – I'm not a person. I don't feel like I'm a person."* Participant #259004 described emptiness in a similar way, *"Like there's nothing, there's nothing there, that there's no, like, there's no emotion, there's no, there's no me… Yeah. Emptiness I just feel like there's nothing left of me"* Similarly, a participant reported their feelings of emptiness were linked to a diffuse sense of identity, and related this to feeling like a chameleon who changes colours according to the situation.

Some participants also described chronic feelings of emptiness as a sense of disconnection from others, though this was described less often than a disconnection with self. Participant #259029 remarked *"*[chronic emptiness is] *disconnection from people. It's like, I'm looking, I'm an observer as opposed to participant".* One participant noted that chronic emptiness occurs when they are *"not connecting with people, and being, like, kind of − I have got a tendency to just, like, stay in my room and, just, like, avoid the world. So, if I'm kind of doing those − like, if I'm kind of doing negative behaviours, I find that the emptiness comes"* (#219065). Other participants noted that chronic emptiness often arose when they were experiencing interpersonal distress – such as comparing themselves to others or feeling like no one cared about them, or interpersonal dysfunction – including conflict in relationships.

Feelings of Unfulfillment and Purposelessness Associated with Emptiness

Chronic emptiness was often related to cognitions and emotions of purposelessness and unfulfillment. One participant reflected emptiness resulted in a

"purposeless kind of living. It's just your kind of very robotic and very, like – there is no meaning or purpose" (#219065). For some participants, this feeling of purposelessness was characterised by low agency, and a lack of self-direction, values and goals. #259049 stated *"I didn't really know what to do; going for jobs, application processes but, you know didn't go through… I was sort of doubting or questioning my life at that point."* While #259090 remarked *"I just felt that I was going through the motions of life I suppose and didn't actually, um, enjoy life at all for a little time."* This sense of purposelessness often culminated in a feeling of unfulfillment – participant reports included *"not living, a life of fulfilment… there's something missing, I'm not living the life that I want to live… why... why, what am I doing right now, like why... What am I doing with my life that is fulfilling me right now?"* (#229070), *"I don't feel like there's anything worth getting out of bed for"* (#219088) and *"questioning the whole point of life and existence"* (#229110).

Feelings of Emptiness are Enduring, Frequent and Difficult to Alleviate

Participants discussed the nature of emptiness as being chronic and difficult to alleviate. One participant noted they did not know what it was like to not feel empty anymore, and others reported a feeling of being stuck with nothing changing. Participants also described emptiness as a frequent experience but noted that it was not always constant and will *"come and go"* (#229072). Participants found it difficult to identify what helps to alleviate emptiness in the long-term, but had developed short-term preventative and coping strategies. One participant likened the experience of chronic emptiness to the descriptions of Dementor's in Harry Potter (hooded wraithlike creatures that consume a human's soul until there is only despair left; (Rowling, 1999)). She reported that *"the Dementor's over you and you, like I said before, you as much as*

you want to try and beat it there's – it's just, you're lifeless. So you – you really can't do anything to, sort of, overcome that" (#219112).

Chronic Emptiness Occurs When Not Distracted

Participants reported chronic emptiness most often occurred when they were not busy or distracted. One participant #259004 said *"it can just be, like, any random day, um, it doesn't have to be a trigger or anything… I can just wake up feeling like that."* Similarly, other participants reflected chronic emptiness arose when they were not making an effort to connect with the people close to them, when they were sitting in traffic and most commonly following the completion of daily activities and prior to sleep. Interestingly, several participants commented on employment functioning as a distraction from the feeling of emptiness. One participant reported *"Even though I might, um, be doing quite well, just coming back to myself at the end of the night and then just being in my own, um – in my own thoughts… throughout the day I'm quite okay because I do have that, um – I have that sense of being able to distract myself through other – other, um, areas, either work, um, gym, my friends or my family… It's when I get home at the end of the night"* (#219112).

Emptiness Reduces Functional Capacity

A further theme that emerged was reduced capacity or inability to function when experiencing emptiness. Participants often reported this when differentiating chronic emptiness from similar experiences. One participant noted that *"emptiness – it's just, like, it's just, yeah, it stops you dead in your tracks, you know… just stops you and you don't want to go out the door."* (#219074). Other participants reported *"I didn't do much in those two years. Like, I did not have much of a life, it was quite a blur"* (#219132) and *"with the emptiness I find it really hard to function"* (#259004).

4.3.3 Understanding Cognitions, Emotions and Behaviours Linked to Emptiness

Chronic Emptiness as Distressing Versus the Use of Chronic Emptiness as Distress Tolerance

Typically, participants spoke about wishing they could not feel empty and trying to create feeling when they do experience emptiness. These participants indicated that the experience of chronic emptiness was distressing for them, and they actively try to avoid the experience. Some participants, however, reported that they use chronic emptiness as a distress tolerance strategy. They spoke about wanting to feel empty inside rather than feel an intense emotion and out of control. This seemed to represent an active choice to inhibit intense emotion, as #219065 reported *"if it's like way too intense, I will just shut it down because I can't deal with it in that moment"*.

Preventative, Coping and Alleviating Strategies for Emptiness

Participants discussed a wide range of ways in which they try to prevent chronic emptiness from occurring, and methods for coping and alleviating chronic emptiness. Typically, similar strategies were employed to prevent, cope with, and alleviate chronic emptiness.

Maladaptive strategies included impulsive behaviours and rumination on thoughts of purposelessness and unfulfillment. Participants spoke about generating alternate affects to emptiness through impulsive behaviours such as self-harm, #219065 *"If I'm feeling empty and I'm feeling like, oh well, I just don't want to sit in this space, I just want something to counteract that, so I'm just going to do something impulsive."* These participants also endorsed avoidance of cognitions associated with emptiness, however reported this avoidance can also result in impulsive or unhelpful behaviours. For individuals who engaged in maladaptive behaviour, they more often reported they had

not thought about how impulsive behaviours may be an attempt to alleviate feelings of chronic emptiness prior to the interview, but when prompted felt that they were linked. For participants who had more adaptive methods of preventing, coping and alleviating chronic emptiness, the most common method of tolerating and alleviating chronic emptiness was through utilising behavioural activation skills. These participants spoke of an active choice to engage in a different behaviour to alleviate emptiness. Several participants reported that when these behaviours are unsuccessful, they resort to sleep in the aim of 'resetting' themselves. Cognitively, some participants reported they choose to ignore or delay focusing on cognitions and emotions associated with emptiness until it abates, participant #219112 remarked *"[I] just involve myself in everything just to keep my mind distracted"*. However, these participants often noted that avoiding cognitions was only a temporary solution. The distinguishing feature of adaptive coping was awareness of the emotion, which appeared to provide an opportunity to choose a coping strategy rather than engage in an immediate reaction.

4.3.4 Clarifying the Differences Between Chronic Emptiness and Associated Experiences

When asked to reflect on if chronic feelings of emptiness were distinguishable from experiences of depression and loneliness, most participants identified emptiness as a distinctive experience. Participants indicated the distinguishing feature was that depression included distressing feelings and cognitions, while emptiness felt like an absence of everything. Participant #219075 stated *"depression is more thinking and emptiness is lack of thinking… your mind is not processing it; it's just empty"* while participant #219132 reported *"depression, um, to me, is an emotion. Um, to me, it is sadness… whereas emptiness is nothing… emptiness is so neutral"*. Similarly,

participant #229110 remarked *"No, it is different, depression is just you feel like you're in a... whirlpool or a crevasse and you're just falling and, there's no getting back. Emptiness is just nothing."* Interestingly, some participants reflected that it was more difficult to function when feeling empty compared to when feeling depressed, possibly indicating that the absence of any thought or feeling results in feelings of anhedonia and amotivation beyond those feelings present in depression. Participants also distinguished between chronic emptiness and feelings of loneliness. Several participants noted that loneliness and chronic emptiness can coincide, and loneliness can often precede feelings of emptiness inside. In a similar way to depressive experiences, a distinguishing feature of loneliness included that *"loneliness, like it is an actual feeling, like − and emptiness is just like lack of feeling"* (#219075), and participants reported they could still function when feeling lonely. Participants attributed feelings of loneliness to a lack of social connections, while chronic emptiness was characterised by a disconnection from both self – goals, ideas, and values – in addition to disconnection from other people. The disconnection from others was not necessarily due to a lack of relationships, but rather *"not feeling like you're connected"* (#219088). Further, participants indicated that loneliness could be alleviated by distraction or social connection, whereas emptiness was more debilitating – one participant reflected *"emptiness is like, what I feel about myself… loneliness can be cheered by meeting up with people*". Some participants spontaneously linked the experience of chronic emptiness to hopelessness. One participant reported chronic emptiness and hopelessness were the same experience, however, other participants noted that chronic emptiness is an absence of feeling while hopelessness is *"the dread feeling"* (#219074). The common theme among the comparisons between chronic emptiness and associated experiences was that feelings of

emptiness were characterised by an absence of thoughts and feelings, rather than the presence of distressing experiences. Interestingly, four participants also spoke of the differences between emptiness and dissociation. They reported that they disconnect or 'zone out' when experiencing feelings of emptiness. This was described as a dream-like state, not being in tune with surroundings, and not paying attention. These participants reported it was similar but distinguishable from dissociation, as #259004 said *"I still know that, like, time's passing, and afterwards I can tell you what I did during that time, but I'm still just sitting there, and I'm just not paying attention, like I'm just zoned out, rather than dissociated."*

4.4 Discussion

This study aimed to understand how individuals with BPD experience the feeling of chronic emptiness. This included clarifying the nature of emptiness, identifying common experiences, cognitions, emotions and behaviours linked to chronic emptiness and understanding the differences with associated constructs. Chronic emptiness was largely reported as a unified construct, with most participants describing a sense of nothingness and numbness that represents a feeling of disconnection with self and others and resulted in feelings of unfulfillment and purposelessness. These findings echo descriptions of emptiness as characterised by low positive affect which creates significant distress rather than intense negative affect (Harpøth et al., 2019; Klonsky, 2008). Feelings of chronic emptiness were frequent but not constant, difficult to alleviate and reduced an individual's capacity to function effectively. Chronic emptiness was significant in the lives of participants and impacted their cognitions and emotions regarding themselves, other people and the world.

Feelings of chronic emptiness in this sample seemed to stem from a disconnection from self and others. In relation to a disconnected sense of self, participants noted that chronic emptiness arose from feeling like they had no identity, that their identity was unstable and difficulties with self-direction, values and goals. This supports previous theoretical work that considers emptiness in part as a reflection of disturbed self-representations (Buie & Adler, 1982; Kernberg, 1968; Kernberg, 1967). Furthermore, participants reported that a disconnection from self and an associated feeling of emptiness often led to feelings and cognitions of purposelessness in life.

Participants also discussed a disconnection from others as a source of chronic emptiness, which often occurred in the context of interpersonal distress and dysfunction. Theoretically, this may relate to impaired other-representations, experiences of invalidation and difficulties with internalising positive social experiences (Buie & Adler, 1982; Fruzzetti et al., 2005). A feeling of disconnection from others may be reflective of the epistemic distrust, hypermentalising and other social cognition deficits that are present for people with BPD, and the relationship to disturbances in identity (Fonagy et al., 2017; Luyten et al., 2020; Sharp & Vanwoerden, 2015; Winsper, 2018). If this is so, chronic emptiness may both arise from deficits in social cognition and identity, and perpetuate these difficulties where people experience a sense of nothingness in themselves, their relationships to others and in the world – thus possibly limiting their ability to connect with others and disrupt the feeling of emptiness.

For most participants, chronic emptiness was experienced as distressing and they attempted to prevent, tolerate or alleviate chronic feelings of emptiness. Participants who had not previously considered the link between emptiness and

impulsive behaviours prior to participation in this research often attempted to relieve emptiness by engaging in maladaptive and impulsive coping strategies. This supports previous literature that hypothesised emptiness feels intolerable and people engage in impulsive behaviours to generate alternate affects to emptiness (Ellison et al., 2016; Klonsky, 2008; Miller et al., 2018). It may also indicate maladaptive responses could arise from difficulties with identifying emotions and their behavioural sequalae. On the other hand, participants who had already identified a link between emptiness and urges to engage in impulsive behaviour discussed noticing feelings of chronic emptiness and choosing to engage in adaptive behaviours to alleviate or tolerate the feeling. Perhaps, engaging in a form of activity aids in quelling or distracting from the emotional and cognitive load of emptiness and those that were more aware of the experience were able to make an active choice on how to respond. This is a novel finding with clinical relevance. Firstly, clinicians may benefit from looking beyond impulsive or self-destructive behaviours and exploring what experience spurs these behaviours. This may increase awareness, reflective capacity and mindfulness of emotion. Secondly, when clients are experiencing difficulty with chronic feelings of emptiness, clinicians may work collaboratively with clients to determine adaptive coping strategies. Specifically, it seems that engagement in vocation and relationships may serve as both a protective buffer against disconnection from self and others and subsequent emptiness. While strategies including behavioural activation may be helpful in replacing maladaptive strategies for coping with chronic emptiness, most participants noted that they are a short-term strategy. Participants were unsure what helps emptiness to resolve in the long-term, which may reflect both the chronic nature of emptiness and the lack of treatment targeted towards the experience.

While most participants reported they found feelings of emptiness distressing, some participants noted chronic emptiness could be brought on intentionally to tolerate distress, in an attempt to regulate intense emotion and prevent behavioural dyscontrol. This may be important in clinical practice for clinicians to discern how individuals relate to feelings of chronic emptiness and the distress associated with emptiness.

Most participants differentiated between feelings of chronic emptiness and associated constructs like loneliness, hopelessness and dissociation. The distinguishing factor was that chronic emptiness is an absence of emotion compared to other experiences which have a visceral feeling. However, participants noted that emptiness and loneliness often coincide which is unsurprising given that the experience of loneliness for people with BPD is prevalent and persistent (Liebke et al., 2017). It is possible that the disconnection from others experienced as chronic emptiness may be exacerbated by feelings of loneliness.

The majority of participants indicated their experience of chronic emptiness could be differentiated from the experiences of depression. While a meta-analysis reported support for a BPD-specific depression characterised by anger, hostility and self-criticism, there were no studies that compared feelings of emptiness in BPD and depressive disorders (Kohling et al., 2015). This study has shown that from a qualitative perspective, chronic emptiness and depression may be related but are separate experiences for this sample of people with BPD.

This study has several limitations. Participants had all received psychological intervention for BPD within the past two years and not all participants were experiencing severe levels of chronic emptiness at the time of the interview. While this enabled some participants to reflect meaningfully and articulately describe their past

experiences, it is possible that chronic emptiness is experienced differently for those who do not receive treatment or who are more acutely symptomatic. Similarly, the results of this study were dependent upon participants being able to articulate an internal experience most commonly defined as an absence of feeling. This was a challenge for some participants and may have resulted in a reliance on participants who were able to effectively articulate their experience of emptiness – most often those who were experiencing emptiness less severely or speaking about past experiences of emptiness. Interview questions directly asked about the link between identity and chronic emptiness, however did not further extrapolate between different forms of identity such as social- and self-identity. As with all qualitative research, interpretation of the participant interviews is influenced by researcher assumptions and expectations which may lead to researcher bias (Roulston & Shelton, 2015).

Future studies could investigate the role of social cognition deficits in identity and chronic emptiness and explore emotion awareness and the impact on behaviour in BPD. Also, more knowledge is required to better understand the differences between people with BPD who actively try to inhibit their emotions by creating a feeling of emptiness, versus those for whom chronic emptiness is unavoidable and distressing. Similarly, future research could further investigate the similarities, differences and relationship between dissociation and chronic feelings of emptiness. While participants in this study provided a range of short-term measures to prevent, tolerate and alleviate chronic feelings of emptiness, the field may benefit from studies trying to understand how to reduce the severity and impact of chronic emptiness over the longer-term for people with BPD. As chronic emptiness is one of the last symptoms of BPD to resolve (Zanarini et al., 2016), research into interventions for chronic emptiness is warranted.

This novel study found that for people with BPD, chronic emptiness is experienced as a sense of nothingness and numbness that reflects a feeling of disconnection from both self and others. It is associated with feelings of unfulfillment and purposelessness. Chronic emptiness is a frequent experience that significantly limits the functional capacity of people with BPD and is distinguishable from loneliness, hopelessness, dissociation, and depression. It is possible that reduction in identity disturbance and improved vocational and relational functioning may reduce the intensity of chronic emptiness. It is difficult to alleviate, however there are a range of strategies people with BPD engage in to prevent, tolerate and alleviate chronic emptiness which may be harnessed for future interventions.

5. Discussion and Future Directions

5.1 Preamble

The three studies in this thesis have contributed to and expanded the knowledge of chronic feelings of emptiness in BPD. This chapter summarises the main findings of these studies in light of the overarching aim of the thesis – to understand the importance, influence and nature of chronic feelings of emptiness for people with BPD. Strengths and limitations of the thesis are discussed. Lastly, theoretical and clinical implications are provided with suggestions for future research exploration.

5.2 Overview of Main Findings

5.2.1 Aims of the Thesis

The specific aims of this thesis were as follows:

1. Systematically examine and report on peer-reviewed research on chronic feelings of emptiness and related concepts in populations with BPD or BPD features (Study One).
2. Identify research supporting theoretical models of chronic emptiness as a reflection of impaired relationship with the self and others (Study One).
3. Explore published research to determine if chronic emptiness represents a single construct or encompasses similar experiences like hopelessness, loneliness, intolerance of aloneness and depression (Study One).
4. Understand the influence of BPD symptoms, including chronic emptiness, on psychosocial function longitudinally (Study Two).
5. Identify whether the relationship between chronic emptiness and psychosocial function is mediated by behavioural symptoms of BPD (Study Two).
6. Examine common experiences of chronic feelings of emptiness for people with BPD (Study Three).

7. Understand cognitions, emotions and behaviours linked to chronic emptiness (Study Three).
8. Clarify the differences between chronic emptiness and related experiences for people with BPD (Study Three).

5.2.2 Main Findings

Taken together, these studies have made an attempt to clarify the importance, influence and nature of chronic emptiness for people with BPD. The use of mixed-methods allowed some triangulation of findings, described below.

The systematic analysis of 99 peer-reviewed articles in Study One offered a comprehensive overview of the field as it currently stands. The predominant finding of Study One was a difficulty in understanding, defining and measuring chronic feelings of emptiness in BPD, which has affected the progression of research in this area. These difficulties were hypothesised to stem from the challenge of quantifying an internal experience described as an absence of feeling, which may not have obvious behavioural manifestations. Despite this, Study One was able to identify several key findings regarding chronic emptiness. For people with BPD, emptiness was experienced frequently and severely, and was shown to have a chronic course with low remission and high recurrence rates. Chronic feelings of emptiness were linked with impulsivity, self-harm and suicide, and had a significant impact on vocational and social function for people with symptoms of BPD. The difference between chronic emptiness and similar constructs was discussed, proposing that chronic emptiness is a singular construct that can be distinguished from hopelessness – a sense of disconnection to meaning and life, loneliness – a sense of disconnection from the world and a feeling of being alone, and intolerance of aloneness – the incapacity to be alone. The systematic review proposed

that chronic emptiness may be a component of a 'borderline depression', however further exploration of this area is warranted. There was preliminary empirical support for theoretical perspectives hypothesising chronic emptiness as a reflection of disconnection from both self and others, perhaps arising from inconsistent caregiving in early development. Lastly, Study One investigated possible treatment interventions for chronic emptiness through an analysis of three studies that reported on chronic emptiness symptoms following intervention. Across studies, findings indicated that the implementation of mindfulness practice, increased capacity for mentalisation and a decrease in patterns of idealisation and devaluation in relationships contributed to a reduction in chronic feelings of emptiness. Considering the findings from Study One, it was hypothesised that treatment targeting self-integration and the development of a narrative self may alleviate chronic feelings of emptiness, in addition to interventions with a focus on increasing adaptive behaviours and social connection.

In relation to the influence of BPD symptoms of psychosocial function over time, Study Two found that self-reported severity of identity disturbance, impulsivity, self-harm or suicide, mood dysregulation and chronic emptiness at intake predicted days out of work in the past fortnight at follow-up 12 months later. Exploratory modelling was conducted to identify the best-fitting serial multiple mediator model. Surprisingly, models including intake severity of identity disturbance were non-significant. The best model identified that severity of impulsivity and self-harm at intake mediated the relationship between intake chronic feelings of emptiness and follow-up days out of work. These findings supported the proposal that chronic emptiness may underlie and drive impulsive behaviours in BPD such as self-harm. It suggests that individuals may find the experience of chronic emptiness so intolerable that they will act in maladaptive

ways to alleviate the symptom, even if only temporarily. It seems that these external dysfunctional manifestations of an inner sense of emptiness directly impact an individual's ability to function effectively. As such, chronic emptiness was identified as an important symptom to consider in both conceptualisation and treatment of BPD, as it may give rise to more acute symptomology and dysfunction over time.

Study Three focused on further understanding the experience of chronic emptiness as told by people with lived experience of BPD. Chronic emptiness was described as a feeling of numbness and nothingness that is enduring and difficult to alleviate. Consistent with theoretical claims, participants related the feeling of emptiness to both disconnection from self and disconnection from other people. This often led to feelings of purposelessness (low agency, lack of self-direction, ambiguity of values and goals) and unfulfillment (lack of meaning, feeling like there is something missing in life). For most participants, chronic emptiness was experienced as distressing, and they would engage in a range of behaviours to prevent, tolerate and relieve emptiness. Those with greater insight into their internal world engaged in more adaptive strategies such as behavioural activation and distraction, while those who had not previously considered the link between chronic emptiness and behavioural outcomes typically engaged in more maladaptive strategies like self-harm or impulsive actions. For some participants, however, chronic emptiness was brought on purposely when emotions were intensifying, as a way to tolerate distress and prevent impulsive behaviours. Chronic emptiness was perceived as distinguishable from related experiences of loneliness, hopelessness, dissociation and depression. The predominant difference was the absence of emotion that characterises chronic emptiness, as opposed to the visceral feelings of loneliness, hopelessness and depression. While chronic emptiness was described as a

feeling of nothingness or numbness, it was distinguishable from dissociation, with participants reflecting they felt disconnected but remained aware of their surroundings when experiencing feelings of emptiness.

5.3 Strengths and Limitations

A strength of this thesis was the use of a mixed-methods design. This allowed for a detailed exploration of chronic feelings of emptiness accounting for the current research literature, quantitative data and the phenomenological experience of people with BPD. Longitudinal data in Study Two provided an opportunity to follow participants with BPD over time and assess the impact of symptomology, providing a new perspective on the influence of chronic feelings of emptiness.

Consideration should also be given to the methodological limitations of this thesis. Detailed limitations of each individual study are discussed in the preceding chapters. The systematic review employed a broad search and inclusion criteria to capture a wide range of studies discussing chronic emptiness. This allowed the inclusion of studies which included results of, but were not explicitly focused on, feelings of chronic emptiness. It is noted that results on chronic emptiness were often presented as an aside, with limited rigorous analysis applied by the authors. This restricted the ability to draw conclusions from some studies in Study One. Further, Study One was limited by the quality of research in this area, with the majority of studies using single-item measures to quantify chronic feelings of emptiness, which may not capture the complex nature of emptiness in BPD. Participants for Study Two and Three were drawn from the same sample, and analyses for Study Two primarily consisted of self-report retrospective quantitative data. Participants had all been identified as experiencing symptoms of BPD by health professionals, had sought help for these difficulties and

were willing to engage in follow-up research. The findings from these studies may not accurately reflect the experiences of individuals who have not been provided with a diagnosis of BPD or engaged in psychological intervention who may experience chronic emptiness in different ways. Further, given the impairments in self-function inherent to BPD, it is unsurprising that a previous study reported individuals with BPD have a negative evaluation bias for self-referential information – meaning that individuals with BPD may devalue positive or neutral information relating to themselves (Winter et al., 2015). Another study found that compared to healthy controls, patients with BPD had a negative recall pattern for momentary and retrospective ratings (Ebner-Priemer et al., 2006). These studies highlight the limitation of self-report quantitative data for individuals with BPD, and as such the findings of the present studies should be interpreted with caution. Further, Study Two was also limited by the assessment methods including the use of broad measures that did not enable a fine grain analysis of psychosocial function, and an inability of our measure to explicitly differentiate self-harm with and without the intent to die. A specific limitation for Study Three was that some participants were no longer acutely experiencing chronic feelings of emptiness, and we were unable to identify if and how chronic emptiness may be experienced differently at varying levels of severity. Further, Study Three focused on the link between identity and chronic emptiness in a broad sense, but did not specifically explore different aspects of identity such as social identity.

Consideration should also be given to the potential bias the researchers bring to this thesis. Research that delves into the qualitative experiences of individuals is undeniably influenced by researchers' values, beliefs and perspectives (Willig & Rogers, 2017). The author of this thesis works within the discipline of clinical

psychology, and her own experiences with individuals with BPD have shaped the development of this thesis. Throughout the data analysis process, the primary author consistently engaged in a reflexive process, and a second coder analysed data to ensure the results reflected the story of participants, rather than the story expected by the researchers.

5.4 Future Research Directions

The findings of this thesis support several areas for future research. The preceding studies have highlighted the importance of chronic feelings of emptiness as a distinguishing feature of BPD. A more comprehensive understanding of chronic emptiness and its role in BPD may contribute to more accurate screening, assessment and diagnosis. Moving forward, the development of a quantitative measure of chronic emptiness specific to BPD populations is warranted in order to support more rigorous quantitative research. Second, research focusing on understanding the relationship between identity disturbance and chronic emptiness is needed to better account for the cause of chronic feelings of emptiness, particularly as it is considered a component of identity impairment in the DSM-5 AMPD. It may be that an amelioration of the severity of chronic feelings of emptiness reflects a more integrated sense of identity, and therefore a higher capacity to meaningfully engage in valued activities. When considering the bias in recall for individuals with BPD (Winter et al., 2015), it may be of use to conduct ecological momentary assessment focusing on chronic feelings of emptiness in order to understand the severity and chronicity of emptiness in real-time. This may also help to further elucidate any antecedents to or consequences of chronic emptiness beyond what was identified in this thesis. Lastly, the findings from the included studies may enable the development of an intervention targeted towards

alleviating chronic feelings of emptiness in BPD. While chronic emptiness may be targeted by clinicians in individualised treatment, there seems to be a lack of guidance in resolving or alleviating chronic emptiness across most therapeutic approaches. This may well reflect the chronic rather than acutely severe nature of emptiness, and the predominant need to focus on safety and stabilisation in treatment. However, given that most acute symptoms resolve within two years of treatment (Zanarini et al., 2007), and treatment effects for BPD remain modest at best (Cristea et al., 2017), targeting chronic emptiness may present an opportunity to increase treatment effectiveness for BPD by reducing distress and dysfunction associated with emptiness.

5.5 Conclusion

The research presented in this thesis aimed to empirically understand the importance, influence and nature of chronic feelings of emptiness. For people with BPD, chronic emptiness is experienced as a sense of numbness and nothingness. Chronic emptiness reflects a sense of disconnection from self and from other people that often results in feelings of purposelessness and unfulfillment. It is typically experienced as distressing, and people with BPD may engage in impulsive behaviours such as self-harm to prevent, tolerate and relieve emptiness which then contributes to vocational dysfunction. Further focus on the symptom of chronic feelings of emptiness and the development of interventions to alleviate this experience may increase treatment effects in BPD.

6. References

Abela, J. R., Payne, A. V., & Moussaly, N. (2003). Cognitive vulnerability to depression in individuals with borderline personality disorder. *Journal of Personality Disorders, 17*(4), 319-329. https://doi.org/10.1521/pedi.17.4.319.23968

Adler, G., & Buie, D. H. (1979). Aloneness and borderline psychopathology: The possible relevance of child development issues. *International Journal of Psychoanalysis, 60*, 83-96.

Amad, A., Ramoz, N., Thomas, P., Jardri, R., & Gorwood, P. (2014). Genetics of borderline personality disorder: systematic review and proposal of an integrative model. *Neuroscience & Biobehavioral Reviews, 40*, 6-19. https://doi.org/10.1016/j.neubiorev.2014.01.003

American Psychiatric Association. (1980). *Diagnostic and statistical manual of mental disorders* (Third ed.). American Psychiatric Association.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (Fifth ed.). American Psychiatric Association.

Amianto, F., Ferrero, A., Pierò, A., Cairo, E., Rocca, G., Simonelli, B., Fassina, S., Abbate-Daga, G., & Fassino, S. (2011). Supervised team management, with or without structured psychotherapy, in heavy users of a mental health service with borderline personality disorder: A two-year follow-up preliminary randomized study. *BMC Psychiatry, 11*(1), 181-195. https://doi.org/10.1186/1471-244X-11-181

Andreasson, K., Krogh, J., Wenneberg, C., Jessen, H. K., Krakauer, K., Gluud, C., Thomsen, R. R., Randers, L., & Nordentoft, M. (2016). Effectiveness of

dialectical behavior therapy versus collaborative assessment and management of suicidality treatment for reduction of self-harm in adults with borderline personality traits and disorder—A randomized observer-blinded clinical trial. *Depression and Anxiety, 33*(6), 520-530. https://doi.org/10.1002/da.22472

Ansell, E. B., Wright, A. G. C., Markowitz, J. C., Sanislow, C. A., Hopwood, C. J., Zanarini, M. C., Yen, S., Pinto, A., McGlashan, T. H., & Grilo, C. M. (2015). Personality disorder risk factors for suicide attempts over 10 years of follow-up. *Personality Disorders: Theory, Research, and Treatment, 6*(2), 161-167. https://doi.org/10.1037/per0000089

Arntz, A., & Jacob, G. (2017). *Schema therapy in practice: An introductory guide to the schema mode approach*. John Wiley & Sons.

Arntz, A., & Van Genderen, H. (2011). *Schema therapy for borderline personality disorder*. John Wiley & Sons.

Bach, B., & Sellbom, M. (2016). Continuity between DSM-5 categorical criteria and traits criteria for borderline personality disorder. *The Canadian Journal of Psychiatry*, *61*(8), 489-494. https://doi.org/10.1177/0706743716640756

Bagge, C., Nickell, A., Stepp, S., Durrett, C., Jackson, K., & Trull, T. J. (2004, May). Borderline personality disorder features predict negative outcomes 2 years later. *Journal of Abnormal Psychology, 113*(2), 279-288. https://doi.org/10.1037/0021-843X.113.2.279

Bateman, A., & Fonagy, P. (2010). Mentalization based treatment for borderline personality disorder. *World Psychiatry, 9*(1), 11-15. https://doi.org/10.1016/j.encep.2018.04.003

Bateman, A., & Fonagy, P. (2013). Mentalization-based treatment. *Psychoanalytic Inquiry*, *33*(6), 595-613. https://doi.org/10.1080/07351690.2013.835170

Beatson, J., Broadbear, J. H., Sivakumaran, H., George, K., Kotler, E., Moss, F., & Rao, S. (2016). Missed diagnosis: The emerging crisis of borderline personality disorder in older people. *Australian & New Zealand Journal of Psychiatry, 50*(12), 1139-1145.

Beck, A. T., & Haigh, E. A. (2014). Advances in cognitive theory and therapy: The generic cognitive model. *Annual Review of Clinical Psychology, 10*, 1-24. https://doi.org/10.1146/annurev-clinpsy-032813-153734

Becker, D. F., McGlashan, T. H., & Grilo, C. M. (2006). Exploratory factor analysis of borderline personality disorder criteria in hospitalized adolescents. *Comprehensive Psychiatry, 47*(2), 99-105. https://doi.org/10.1016/j.comppsych.2005.07.003

Bell, M., Billington, R., Cicchetti, D., & Gibbons, J. (1988). Do object relations deficits distinguish BPD from other diagnostic groups? *Journal of Clinical Psychology, 44*(4), 511-516. https://doi.org/10.1002/1097-4679(198807)44:4<511::aid-jclp2270440406>3.0.co;2-t

Benazzi, F. (2006). Borderline personality–bipolar spectrum relationship. *Progress in Neuro-Psychopharmacology Biological Psychiatry*, *30*(1), 68-74. https://doi.org/10.1016/j.pnpbp.2005.06.010

Berk, M. S., Jeglic, E., Brown, G. K., Henriques, G. R., & Beck, A. T. (2007). Characteristics of recent suicide attempters with and without borderline personality disorder. *Archives of Suicide Research, 11*(1), 91-104. https://doi.org/10.1080/13811110600992951

Bernheim, D., Gander, M., Kriegel, S., Becker, M., Lischke, A., Mentel, R., Freyberger, H. J., & Buchheim, A. (2018). Change of attachment characteristics during dialectic behavioral therapy for borderline patients. *Zeitschrift für Klinische Psychologie, Psychiatrie und Psychotherapie, 66*(2), 119-131. https://doi.org/10.1024/1661-4747/a000347

Bhar, S. S., Brown, G. K., & Beck, A. T. (2008). Dysfunctional beliefs and psychopathology in borderline personality disorder. *Journal of Personality Disorders, 22*(2), 165-177. https://doi.org/10.1521/pedi.2008.22.2.165

Black, D. W., Blum, N., & Allen, J. (2018). STEPPS treatment programme for borderline personality disorder: Which scale items improve? An item-level analysis. *Personality and Mental Health, 12*(4), 345-354. https://doi.org/10.1002/pmh.1431

Black, D. W., Blum, N., Pfohl, B., & Hale, N. (2004). Suicidal behaviour in borderline personality disorder: Prevalence, risk factors, prediction and prevention. *Journal of Personality Disorders, 18*(3), 226-239. https://doi.org/10.1521/pedi.18.3.226.35445

Blasco-Fontecilla, H., de Leon-Martiniez, V., Delgado-Gomex, D., Giner, L., Guillaume, S., & Courtet, P. (2013). Emptiness and suicidal behaviour: An exploratory review. *Suicidology Online, 4*(4), 21-32.

Bohus, M., Limberger, M. F., Frank, U., Chapman, A. L., Kühler, T., & Stieglitz, R.-D. (2007). Psychometric properties of the borderline symptom list (BSL). *Psychopathology*, *40*(2), 126-132. https://doi.org/10.1159/000098493

Bohus, M., Limberger, M. F., Frank, U., Sender, I., Gratwohl, T., & Stieglitz, R.-D. (2001). Development of the borderline symptom list. *Psychotherapie,*

Psychosomatik, Medizinische Psychologie, 51(5), 201-211. https://doi.org/10.1055/s-2001-13281

Bornovalova, M. A., Gratz, K. L., Delany-Brumsey, A., Paulson, A., & Lejuez, C. (2006). Temperamental and environmental risk factors for borderline personality disorder among inner-city substance users in residential treatment. *Journal of Personality Disorders, 20*(3), 218-231. https://doi.org/10.1521/pedi.2006.20.3.218

Braun, V., Clarke, V., Hayfield, N., & Terry, G. (2019). Thematic Analysis. In P. Liamputtong (Ed.), *Handbook of Research Methods in Health Social Sciences* (pp. 843-860). Springer Singapore. https://doi.org/10.1007/978-981-10-5251-4_103

Brickman, L. J., Ammerman, B. A., Look, A. E., Berman, M. E., & McCloskey, M. S. (2014). The relationship between non-suicidal self-injury and borderline personality disorder symptoms in a college sample. *Borderline Personality Disorder and Emotion Regulation, 1*(14), 1-8. https://doi.org/10.1186/2051-6673-1-14

Brown, G. K., Newman, C. F., Charlesworth, S. E., Crits-Christoph, P., & Beck, A. T. (2004). An open clinical trial of cognitive therapy for borderline personality disorder. *Journal of Personality Disorders, 18*(3), 257-271. https://doi.org/10.1521/pedi.18.3.257.35450

Buchheim, A., Erk, S., George, C., Kächele, H., Kircher, T., Martius, P., Pokorny, D., Ruchsow, M., Spitzer, M., & Walter, H. (2008). Neural correlates of attachment trauma in borderline personality disorder: a functional magnetic resonance imaging study. *Psychiatry Research: Neuroimaging, 163*(3), 223-235. https://doi.org/10.1016/j.pscychresns.2007.07.001

Buie, D. H., & Adler, G. (1982). Definitive treatment of the borderline personality. *International Journal of Psychoanalytic Psychotherapy, 9*, 51-87.

Caligor, E., Kernberg, O. F., Clarkin, J. F., & Yeomans, F. E. (2018). *Psychodynamic therapy for personality pathology: treating self and interpersonal functioning*. American Psychiatric Pub.

Callahan, J. (1996). A specific therapeutic approach to suicide risk in borderline clients. *Clinical Social Work Journal, 24*(4), 443-459. https://doi.org/10.1007/BF02190749

Cary, G. L. (1972). The borderline condition: A structural-dynamic viewpoint. *Psychoanalytic Review, 59*(1), 33-54.

Chabrol, H., Chouicha, K., Montovany, A., & Callahan, S. (2001). Symptomatology of DSM IV borderline personality disorder in a non-clinical sample of adolescents: Study of 35 borderline cases. *Encephale-revue De Psychiatrie Clinique Biologique et Therapeutique, 27*(2), 120-127.

Chabrol, H., Montovany, A., Callahan, S., Chouicha, K., & Ducongé, E. (2002). Factor analyses of the DIB-R in adolescents. *Journal of Personality Disorders, 16*(4), 374-384. https://doi.org/10.1521/pedi.16.4.374.24123

Chanen, A. M. (2015). Borderline Personality Disorder in Young People: Are We There Yet? *Journal of Clinical Psychology, 71*(8), 778-791. https://doi.org/10.1002/jclp.22205

Chapman, A. L., Gratz, K. L., & Brown, M. Z. (2006). Solving the puzzle of deliberate self-harm: the experiential avoidance model. *Behaviour Research and Therapy, 44*(3), 371-394. https://doi.org/10.1016/j.brat.2005.03.005

Chapman, A. L., Specht, M. W., & Cellucci, T. (2005). Factors associated with suicide attempts in female inmates: The hegemony of hopelessness. *Suicide and Life-Threatening Behavior, 35*(5), 558-569. https://doi.org/10.1521/suli.2005.35.5.558

Choi-Kain, L. W., Zanarini, M. C., Frankenburg, F. R., Fitzmaurice, G. M., & Reich, D. B. (2010). A longitudinal study of the 10-year course of interpersonal features in borderline personality disorder. *Journal of Personality Disorders, 24*(3), 365-376. https://doi.org/10.1521/pedi.2010.24.3.365

Clarke, D. E., & Kuhl, E. A. (2014). DSM-5 cross-cutting symptom measures: A step towards the future of psychiatric care? *World Psychiatry, 13*(3), 314-316. https://doi.org/10.1002/wps.20154

Clarkin, J. F., Lenzenweger, M. F., Yeomans, F., Levy, K. N., & Kernberg, O. F. (2007). An object relations model of borderline pathology. *Journal of personality disorders, 21*(5), 474-499. https://doi.org/10.1521/pedi.2007.21.5.474

Cohen, C. P., & Sherwood, V. R. (1996). *Becoming a constant object in psychotherapy with the borderline patient*. Jason Aronson.

Conte, H. R., Plutchik, R., Karasu, T. B., & Jerrett, I. (1980). A self-report borderline scale: Discriminative validity and preliminary norms. *Journal of Nervous Mental Disease, 168*(7), 428-435.

Cottraux, J., Note, I. D., Boutitie, F., Milliery, M., Genouihlac, V., Yao, S. N., Note, B., Mollard, E., Bonasse, F., & Gaillard, S. (2009). Cognitive therapy versus Rogerian supportive therapy in borderline personality disorder. *Psychotherapy and Psychosomatics, 78*(5), 307-316. https://doi.org/10.1159/000229769

Crabtree, B. F., & Miller, W. F. (1992). A template approach to text analysis: developing and using codebooks.

Cramer, V., Torgersen, S., & Kringlen, E. (2006). Personality disorders and quality of life. A population study. *Comprehensive Psychiatry, 47*(3), 178-184. https://doi.org/10.1016/j.comppsych.2005.06.002

Cristea, I., Gentili, C., Cotet, C., Palomba, D., Barbui, C., & Cuijpers, P. (2017). Efficacy of Psychotherapies for Borderline Personality Disorder: A Systematic Review and Meta-analysis. *JAMA Psychiatry, 74*(4), 319-328. https://doi.org/10.1001/jamapsychiatry.2016.4287

Crowe, M., & Sheppard, L. (2011). A review of critical appraisal tools show they lack rigor: alternative tool structure is proposed. *Journal of Clinical Epidemiology, 64*(1), 79-89. https://doi.org/10.1016/j.jclinepi.2010.02.008

Crowell, S. E., Beauchaine, T. P., & Linehan, M. M. (2009). A biosocial developmental model of borderline personality: Elaborating and extending Linehan's theory. *Psychological Bulletin, 135*(3), 495-510. https://doi.org/10.1037/a0015616

Deutsch, H. (1942). Some forms of emotional disturbance and their relationship to schizophrenia. *Psychoanalytic Quarterly, 11*(3), 301-321. https://doi.org/10.1080/21674086.1942.11925501

Distel, M. A., Trull, T. J., Derom, C. A., Thiery, E. W., Grimmer, M. A., Martin, N. G., Willemsen, G., & Boomsma, D. I. (2008). Heritability of borderline personality disorder features is similar across three countries. *Psychological Medicine, 38*(9), 1219. https://doi.org/10.1017/S0033291707002024

Ebner-Priemer, U. W., Kuo, J., Schlotz, W., Kleindienst, N., Rosenthal, M. Z., Detterer, L., Linehan, M. M., & Bohus, M. (2008). Distress and affective dysregulation in

patients with borderline personality disorder: A psychophysiological ambulatory monitoring study. *The Journal of Nervous and Mental Disease, 196*(4), 314-320. https://doi.org/10.1097/NMD.0b013e31816a493f

Ebner-Priemer, U. W., Kuo, J., Welch, S. S., Thielgen, T., Witte, S., Bohus, M., & Linehan, M. M. (2006). A valence-dependent group-specific recall bias of retrospective self-reports: A study of borderline personality disorder in everyday life. *The Journal of Nervous and Mental Disease, 194*(10), 774-779. https://doi.org/10.1097/01.nmd.0000239900.46595.72

Ellison, W. D., Rosenstein, L., Chelminski, I., Dalrymple, K., & Zimmerman, M. (2016). The clinical significance of single features of borderline personality disorder: Anger, affective instability, impulsivity, and chronic emptiness in psychiatric outpatients. *Journal of Personality Disorders, 30*(2), 261-270. https://doi.org/10.1521/pedi_2015_29_193

Erikson, E. H. (1956). The problem of ego identity. *Journal of the American Psychoanalytic Association, 4*(1), 56-121.

Esguevillas, A., Diaz-Caneja, C. M., Arango, C., Rey-Mejias, A. L. D., Bernardo, E. G., Delgado, C., Clarkin, J. F., & Carrasco, J. L. (2017). Personality organization and its association with clinical and functional features in borderline personality disorder. *Psychiatry Research*. https://doi.org/10.1016/j.psychres.2017.09.013

Espinosa, J. J., Grynberg, B. B., & Mendoza, M. P. R. (2009). Suicidal risk and lethality in patients with borderline personality disorder (BPD), at a psychiatry hospital. *Salud Mental, 32*(4), 317-325. https://doi.org/10.1521/pedi.2013.27.2.222

Eyden, J., Winsper, C., Wolke, D., Broome, M. R., & MacCallum, F. (2016). A systematic review of the parenting and outcomes experienced by offspring of

mothers with borderline personality pathology: Potential mechanisms and clinical implications. *Clinical Psychology Review, 47*, 85-105. https://doi.org/10.1016/j.cpr.2016.04.002

Fereday, J., & Muir-Cochrane, E. J. I. j. o. q. m. (2006). Demonstrating rigor using thematic analysis: A hybrid approach of inductive and deductive coding and theme development. *5*(1), 80-92.

Fertuck, E. A., Karan, E., & Stanley, B. (2016). The specificity of mental pain in borderline personality disorder compared to depressive disorders and healthy controls. *Borderline Personality Disorder and Emotion Dysregulation, 3*(1), 2-10. https://doi.org/10.1186/s40479-016-0036-2

First, M. B., Gibbon, M., Spitzer, R. L., Williams, J. B., & Benjamin, L. S. (1997). *Structured Clinical Interview for DSM-IV Axis II Personality Disorders SCID-II*. American Psychiatric Pub.

Flynn, D., Kells, M., Joyce, M., Corcoran, P., Gillespie, C., Suarez, C., Weihrauch, M., & Cotter, P. (2017). Standard 12 month dialectical behaviour therapy for adults with borderline personality disorder in a public community mental health setting. *Borderline Personality Disorder and Emotion Dysregulation, 4*(1), 19-30. https://doi.org/10.1186/s40479-017-0070-8

Fonagy, P. (2000). Attachment and borderline personality disorder. *Journal of the American Psychoanalytic Association, 48*(4), 1129-1146. https://doi.org/10.1177/00030651000480040701

Fonagy, P., & Bateman, A. W. (2006). Mechanisms of change in mentalization-based treatment of BPD. *Journal of Clinical Psychology, 62*(4), 411-430. https://doi.org/10.1002/jclp.20241

Fonagy, P., Luyten, P., Allison, E., & Campbell, C. (2017). What we have changed our minds about: Part 2. Borderline personality disorder, epistemic trust and the developmental significance of social communication. *Borderline Personality Disorder and Emotion Dysregulation, 4*(1), 9-21. https://doi.org/10.1186/s40479-017-0062-8

Fonagy, P., Luyten, P., & Bateman, A. (2015). Translation: Mentalizing as treatment target in borderline personality disorder. *Personality Disorders: Theory, Research, and Treatment, 6*(4), 380-392. https://doi.org/10.1037/per0000113

Fritsch, S., Donaldson, D., Spirito, A., & Plummer, B. (2000). Personality characteristics of adolescent suicide attempters. *Child Psychiatry and Human Development, 30*(4), 219-235. https://doi.org/10.1023/B:CHUD.0000037151.02381.52

Fruzzetti, A. E., Shenk, C., & Hoffman, P. D. (2005). Family interaction and the development of borderline personality disorder: A transactional model. *Development and Psychopathology, 17*(4), 1007-1030. https://doi.org/10.1017/s0954579405050479

Fuchs, T. (2007). Fragmented selves: Temporality and identity in borderline personality disorder. *Psychopathology, 40*, 379-387. https://doi.org/10.1159/000106468

García-Alandete, J., Salvador, M., José, H., & Pérez Rodríguez, S. (2014). Predicting role of the meaning in life on depression, hopelessness, and suicide risk among borderline personality disorder patients. *Universitas Psychologica, 13*(4), 1545-1555. https://doi.org/10.11144/Javeriana.UPSY13-4.prm

Glenn, C. R., & Klonsky, E. D. (2013). Nonsuicidal self-injury disorder: An empirical investigation in adolescent psychiatric patients. *Journal of Clinical Child &*

Adolescent Psychology, *42*(4), 496-507. https://doi.org/10.1080/15374416.2013.794699

Goodman, M., Patel, U., Oakes, A., Matho, A., & Triebwasser, J. (2013). Developmental trajectories to male borderline personality disorder. *Journal of Personality Disorders*, *27*(6), 764-782. https://doi.org/10.1521/pedi_2013_27_111.

Goueli, T., Nasreldin, M., Madbouly, N., Dziobek, I., & Farouk, M. (2019). Social cognition in adolescent females with borderline personality traits. *Psychology and Psychotherapy: Theory, Research and Practice*. https://doi.org/10.1111/papt.12257

Grant, B. F., Chou, S. P., Goldstein, R. B., Huang, B., Stinston, F. S., Saha, T. D., Smith, S. M., Dawson, D. A., Pulay, A. J., Pickering, R. P., & Ruan, W. J. (2008). Prevalence, correlates, disability and comorbidity of DSM-IV borderline personality disorder: Results from the wave 2 national epidemiologic survey on alcohol and related conditions. *Journal of Clinical Psychiatry*, *69*(4), 533-545. https://doi.org/10.4088/jcp.v69n0404

Greenberg, L. S., & Bolger, E. (2001). An emotion-focused approach to the overregulation of emotion and emotional pain. *Journal of Clinical Psychology*, *57*(2), 197-211. https://doi.org/10.1002/1097-4679(200102)57:2<197::AID-JCLP6>3.0.CO;2-O

Grenyer, B. (2013). Improved prognosis for borderline personality disorder. *Medical Journal of Australia*, *198*(9), 464-465. https://doi.org/10.5694/mja13.10470

Grenyer, B. F. (2014). An integrative relational step-down model of care: the project Air strategy for personality disorders. *The ACPARIAN*, *9*, 8-13.

Grenyer, B. F. S. (2017, Feb). Revising the diagnosis of personality disorder: Can it be single, clinical and factorial? *Australian and New Zealand Journal of Psychiatry*, *52*(2), 202-203. https://doi.org/10.1177/0004867417741984

Grenyer, B. F. S., Lewis, K. L., Fanaian, M., & Kotze, B. (2018). Treatment of personality disorder using a whole of service stepped care approach: a cluster randomized controlled trial. *PLoS One, 13*(11), e0206472.

Grinker, R., Webble, B., & Drye, R. (1968). *The Borderline Syndrome. A Behavioral Study of Ego-Functions*. Basic Books.

Gunderson, J. G. (2009). *Borderline personality disorder: A clinical guide*. American Psychiatric Pub.

Gunderson, J. G., Daversa, M. T., Grilo, C. M., McGlashan, T. H., Zanarini, M. C., Shea, M. T., Skodol, A. E., Yen, S., Sanislow, C. A., Bender, D. S., Dyck, I. R., Morey, L. C., & Stout, R. L. (2006). Predictors of 2-year outcome for patients with borderline personality disorder. *American Journal of Psychiatry*, *163*(5), 822-826. https://doi.org/10.1176/appi.ajp.163.5.822

Gunderson, J. G., & Phillips, K. A. (1991). A current view of the interface between borderline personality disorder and depression. *The American Journal of Psychiatry*, *148*(8), 967-975. https://doi.org/10.1176/ajp.148.8.967

Gunderson, J. G., Stout, R. L., McGlashan, T. H., Shea, M. T., Morey, L. C., Grilo, C. M., Zanarini, M. C., Yen, S., Markowitz, J. C., Sanislow, C., Ansell, E., Pinto, A., & Skodol, A. E. (2011). Ten-year course of borderline personality disorder: psychopathology and function from the Collaborative Longitudinal Personality Disorders study. *Archives of General Psychiatry*, *68*(8), 827-837. https://doi.org/10.1001/archgenpsychiatry.2011.37

Harford, T. C., Chen, C. M., Kerridge, B. T., & Grant, B. F. (2019). Borderline personality disorder and violence toward self and others: A national study. *Journal of Personality Disorders, 32*, 1-18. https://doi.org/10.1521/pedi_2018_32_361

Harpøth, T. S. D., Hepp, J., Trull, T. J., Bateman, A. W., Kongerslev, M. T., & Simonsen, E. (2019). Positive Affect Is Associated With Decreased Symptom Severity in the Daily Lives of Individuals With Borderline Personality Disorder. *Journal of Personality Disorders*, 1-18. https://doi.org/10.1521/pedi_2019_33_453

Hartocollis, P. (1977). Affects in borderline disorders. In P. Hartocollis (Ed.), *Borderline personality disorders*. International Universities Press.

Hauschild, S., Winter, D., Thome, J., Liebke, L., Schmahl, C., Bohus, M., & Lis, S. (2018). Behavioural mimicry and loneliness in borderline personality disorder. *Comprehensive Psychiatry, 82*, 30-36. https://doi.org/10.1016/j.comppsych.2018.01.005

Hayes, A. F., & Rockwood, N. J. (2016). Regression-based statistical mediation and moderation analysis in clinical research: Observations, recommendations, and implementation. *Behaviour Research and Therapy, 98*, 39-57. https://doi.org/10.1016/j.brat.2016.11.001

Hengartner, M. P., Müller, M., Rodgers, S., Rössler, W., & Ajdacic-Gross, V. (2014). Interpersonal functioning deficits in association with DSM-IV personality disorder dimensions. *Social Psychiatry and Psychiatric Epidemiology*, *49*(2), 317-325. https://doi.org/10.1007/s00127-013-0707-x

Hill, J., Pilkonis, P., Morse, J., Feske, U., Reynolds, S., Hope, H., Charest, C., & Broyden, N. (2008). Social domain dysfunction and disorganization in borderline personality disorder. *Psychological Medicine, 38*(1), 135-146. https://doi.org/10.1017/S0033291707001626

Hill, J., Stepp, S. D., Wan, M. W., Hope, H., Morse, J. Q., Steele, M., Steele, H., & Pilkonis, P. A. (2011). Attachment, borderline personality, and romantic relationship dysfunction. *Journal of Personality Disorders, 25*(6), 789-805. https://doi.org/10.1521/pedi.2011.25.6.789

Hoertel, N., Peyre, H., Wall, M. M., Limosin, F., & Blanco, C. (2014). Examining sex differences in DSM-IV borderline personality disorder symptom expression using Item Response Theory (IRT). *Journal of Psychiatric Research, 59*, 213-219. https://doi.org/10.1016/j.jpsychires.2014.08.019

Holm, A. L., & Severinsson, E. (2008). The emotional pain and distress of borderline personality disorder: A review of the literature. *International Journal of Mental Health Nursing, 17*(1), 27-35. https://doi.org/10.1111/j.1447-0349.2007.00508.x

Horesh, N., Orbach, I., Gothelf, D., Efrati, M., & Apter, A. (2003). Comparison of the suicidal behavior of adolescent inpatients with borderline personality disorder and major depression. *The Journal of Nervous and Mental Disease, 191*(9), 582-588. https://doi.org/10.1097/01.nmd.0000087184.56009.61

Hughes, A. E., Crowell, S. E., Uyeji, L., & Coan, J. A. (2012). A developmental neuroscience of borderline pathology: Emotion dysregulation and social baseline theory. *Journal of Abnormal Child Psychology, 40*(1), 21-33. https://doi.org/10.1007/s10802-011-9555-x

Hulbert, C., & Thomas, R. (2007). Public sector group treatment for severe personality disorder: a 12-month follow-up study. *Australasian Psychiatry*, *15*(3), 226-231. https://doi.org/10.1080/1039856070131710

Hutsebaut, J., & Aleva, A. (2020). The identification of a risk profile for young people with borderline personality pathology: a review of recent literature. *Current Opinion in Psychology*, *37*, 13-20. https://doi.org/10.1016/j.copsyc.2020.06.004

Huxley, E., Lewis, K. L., Coates, A. D., Borg, W. M., Miller, C. E., Townsend, M. L., & Grenyer, B. F. S. (2019). Evaluation of a brief intervention within a stepped care whole of service model for personality disorder. *BMC Psychiatry*, *19*(1), 1-12.

Jackson, H. J., & Burgess, P. M. (2004). Personality disorders in the community: Results from the Australian national survey of mental health and well-being part III. *Social Psychiatry and Psychiatric Epidemiology*, *39*(10), 765-776. https://doi.org/10.1007/s00127-004-0821-x

James, A., Berelowitz, M., & Vereker, M. (1995). Borderline personality disorder: A study in adolescence. *European Child and Adolescent Psychiatry*, *5*(1), 11-17. https://doi.org/10.1007/BF00708209

Javaras, K. N., Zanarini, M. C., Hudson, J. I., Greenfield, S. F., & Gunderson, J. G. (2017). Functional outcomes in community-based adults with borderline personality disorder. *Journal of Psychiatric Research*, *89*, 105-114. https://doi.org/10.1016/j.jpsychires.2017.01.010

Johansen, M., Karterud, S., Pedersen, G., Gude, T., & Falkum, E. (2004). An investigation of the prototype validity of the borderline DSM-IV construct. *Acta*

Psychiatr Scand, 109(4), 289-298. https://doi.org/10.1046/j.1600-0447.2003.00268.x

Johnson, B. N., & Levy, K. N. (2020). Identifying unstable and empty phenotypes of borderline personality through factor mixture modeling in a large nonclinical sample. *Personality Disorders: Theory, Research, and Treatment, 11*(2), 141-150. https://doi.org/10.1037/per0000360

Jovev, M., & Jackson, H. J. (2006). The relationship of borderline personality disorder, life events and functioning in an Australian psychiatric example. *Journal of Personality Disorders, 20*(3), 205-217. https://doi.org/10.1521/pedi.2006.20.3.205

Kaess, M., Brunner, R., & Chanen, A. (2014). Borderline personality disorder in adolescence. *Pediatrics, 134*(4), 782-793.

Keely, J. W., Flanagan, E. H., & McCluskey, D. L. (2014). Functional impairment and the DSM-5 dimensional system for personality disorder. *Journal of Personality Disorders, 28*(5), 657-675. https://doi.org/10.1521/pedi_2014_28_133

Kernberg, O. (1968). The treatment of patients with borderline personality organization. *International Journal of Psychoanalysis, 49*, 600-619.

Kernberg, O. (1975). *Borderline conditions and pathological narcissism*. Jason Aronson.

Kernberg, O. F. (1967). Borderline personality organisation. *Journal of the American Psychoanalytic Association, 15*, 641-685.

Kernberg, O. F. (1984). *Severe Personality Disorders: Psychotherapeutic Strategies*. Yale University.

Kernberg, O. F. (2017). Identity: Recent Findings and Clinical Implications. *The Psychoanalytic Quarterly*, *75*(4), 969-1004. https://doi.org/10.1002/j.2167-4086.2006.tb00065.x

Kerr, S., Dalrymple, K., Chelminski, I., & Zimmerman, M. (2018). Depression and substance use disorders in the offspring of depressed parents as a function of the parent's borderline personality disorder symptomatology. *Annals of Clinical Psychiatry*, *30*(2), 207-214.

Kleiman, E. M., Adams, L. M., Kashdan, T. B., & Riskind, J. H. (2013). Grateful individuals are not suicidal: Buffering risks associated with hopelessness and depressive symptoms. *Personality and Individual Differences, 55*(5), 595-599. https://doi.org/10.1016/j.paid.2013.05.002

Kleiman, E. M., & Beaver, J. K. (2013). A meaningful life is worth living: Meaning in life as a suicide resiliency factor. *Psychiatry Research, 210*(3), 934-939. https://doi.org/10.1016/j.psychres.2013.08.002

Klonsky, E. D. (2008). What is emptiness? Clarifying the 7th criterion for borderline personality disorder. *Journal of Personality Disorders, 22*(4), 418-426. https://doi.org/10.1521/pedi.2008.22.4.418

Koenigsberg, H. W. (2010). Affective instability: toward an integration of neuroscience and psychological perspectives. *Journal of Personality Disorders 24*(1), 60-82. https://doi.org/10.1521/pedi.2010.24.1.60

Kohling, J., Ehrenthal, J. C., Levy, K. N., Schauenburg, H., & Dinger, U. (2015). Quality and severity of depression in borderline personality disorder: A systematic review and meta-analysis. *Clinical Psychology Review, 37*, 13-25. https://doi.org/10.1016/j.cpr.2015.02.002

Koons, C. R., Robins, C. J., Tweed, J. L., Lynch, T. R., Gonzalez, A. M., Morse, J. Q., Bishop, G. K., Butterfield, M. I., & Bastian, L. A. (2001). Efficacy of dialectical behavior therapy in women veterans with borderline personality disorder. *Behavior Therapy, 32*(2), 371-390. https://doi.org/10.1016/S0005-7894(01)80009-5

LaFarge, L. (1989). Emptiness as defense in severe regressive states. *Journal of the American Psychoanalytic Association, 37*(4), 965-995. https://doi.org/10.1177/000306518903700405

Lamprell, M. (1994). From emptiness to loss: A journey from the intrapersonal to the interpersonal. *British Journal of Psychotherapy, 10*(3), 331-343. https://doi.org/10.1111/j.1752-0118.1994.tb00665.x

Leichsenring, F. (2004). Quality of depressive experience in borderline personality disorders: Differences between patients with borderline personality disorder and patients with highe rlevels of personality organisation. *Bulletin of the Menninger Clinic, 68*(1), 9-22. https://doi.org/10.1521/bumc.68.1.9.27729

Leichsenring, F., Leibing, E., Kruse, J., New, A. S., & Leweke, F. (2011). Borderline personality disorder. *The Lancet, 377*(9759), 74-84. https://doi.org/10.1016/S0140-6736(10)61422-5

Lenzenweger, M. F., Lane, M. C., Loranger, A. W., & Kessler, R. C. (2007). DSM-IV personality disorders in the National Comorbidity Survey Replication. *Biological Psychiatry, 62*(6), 553-564. https://doi.org/10.1016/j.biopsych.2006.09.019

Lenzenweger, M. F., McClough, J. F., Clarkin, J. F., & Kernberg, O. F. (2012). Exploring the interface of neurobehaviorally linked personality dimensions and

personality organization in borderline personality disorder: The Multidimensional Personality Questionnaire and Inventory of Personality Organization. *Journal of Personality Disorders, 26*(6), 902-918. https://doi.org/10.1521/pedi.2012.26.6.902

Leppänen, V., Vuorenmaa, E., Lindeman, S., Tuulari, J., & Hakko, H. (2016). Association of parasuicidal behaviour to early maladaptive schemas and schema modes in patients with BPD: The Oulu BPD study. *Personality and Mental Health, 10*(1), 58-71. https://doi.org/10.1002/pmh.1304

Levy, K. N. (2005). The implications of attachment theory and research for understanding borderline personality disorder. *Development and Psychopathology, 17*(4), 959-986. https://doi.org/10.1017/s0954579405050455

Levy, K. N., Clarkin, J. F., Yeomans, F. E., Scott, L. N., Wasserman, R. H., & Kernberg, O. F. (2006). The mechanisms of change in the treatment of borderline personality disorder with transference focused psychotherapy. *Journal of Clinical Psychology, 62*(4), 481-501. https://doi.org/10.1002/jclp.20239

Levy, S. T. (1984). Psychoanalytic perspectives on emptiness. *Journal of the American Psychoanalytic Association, 32*(2), 387-404. https://doi.org/10.1177/000306518403200207

Lewis, K., Caputi, P., & Grenyer, B. F. S. (2012). Borderline personality disorder subtypes: A factor analysis of the DSM-IV criteria. *Personality and Mental Health, 6*(3), 196-206.

Lewis, K. L., Fanaian, M., Kotze, B., & Grenyer, B. F. S. (2019). Mental health presentations to acute psychiatric services: 3-year study of prevalence and

readmission risk for personality disorders compared with psychotic, affective, substance or other disorders. *BJPsych Open, 5*(1). https://doi.org/10.1192/bjo.2018.72

Lieb, K., Zanarini, M. C., Schmahl, C., Linehan, M. M., & Bohus, M. (2004). Borderline personality disorder. *The Lancet, 364*(9432), 453-461. https://doi.org/10.1016/S0140-6736(04)16770-6.

Liebke, L., Bungert, M., Thome, J., Hauschild, S., Gescher, D. M., Schmahl, C., Bohus, M., & Lis, S. (2017). Loneliness, social networks, and social functioning in borderline personality disorder. *Personality Disorders: Theory, Research, and Treatment, 8*(4), 349. https://doi.org/10.1037/per0000208

Linehan, M. M. (1993). *Cognitive behavioural treatment of borderline personality disorder*. The Guilford Press.

Linehan, M. M. (2015). *DBT skills training manual*. Guilford Publications.

Linehan, M. M. (2018). *Cognitive-behavioral treatment of borderline personality disorder*. Guilford Publications.

Lingiardi, V., & McWilliams, N. (2017). *Psychodynamic diagnostic manual: PDM-2*. Guilford Publications.

Links, P. S., Mitton, J. E., & Steiner, M. (1990). Predicting outcome for borderline personality disorder. *Comprehenive Psychiatry, 31*(6), 490-498. https://doi.org/10.1016/0010-440x(90)90063-x

Lis, S., & Bohus, M. (2013). Social Interaction in Borderline Personality Disorder. *Current Psychiatry Reports, 15*(2), 338-344. https://doi.org/10.1007/s11920-012-0338-z

Luyten, P., Campbell, C., & Fonagy, P. (2020). Borderline personality disorder, complex trauma, and problems with self and identity: A social-communicative approach. *Journal of Personality, 88*(1), 88-105. https://doi.org/10.1111/jopy.12483

Maffei, C., Fossati, A., Agostoni, I., Barraco, A., Bagnato, M., Deborah, D., Namia, C., Novella, L., & Petrachi, M. (1997). Interrater reliability and internal consistency of the structured clinical interview for DSM-IV axis II personality disorders (SCID-II), version 2.0. *Journal of Personality Disorders, 11*(3), 279-284. https://doi.org/10.1521/pedi.1997.11.3.279

Mallen, C., Peat, G., & Croft, P. (2006). Quality assessment of observational studies is not commonplace in systematic reviews. *Journal of Clinical Epidemiology, 59*(8), 765-769. https://doi.org/10.1016/j.jclinepi.2005.12.010

Marco, J. H., Garcia-Alandete, J., Perez, S., & Botella, C. (2014). The meaning in life as mediating variable between depression and hopelessness in patients with borderline personality disorder. *Behavioral Psychology, 22*(2), 293-305.

Marco, J. H., Garcia-Alandete, J., Pérez, S., Guillen, V., Jorquera, M., Espallargas, P., & Botella, C. (2015). Meaning in life and non-suicidal self-injury: A follow-up study with participants with Borderline Personality Disorder. *Psychiatry Research, 230*(2), 561-566. https://doi.org/10.1016/j.psychres.2015.10.004

Marco, J. H., Guillén, V., & Botella, C. (2017). The buffer role of meaning in life in hopelessness in women with borderline personality disorders. *Psychiatry Research, 247*, 120-124. https://doi.org/10.1016/j.psychres.2016.11.011

Masterson, J. F. (1976). *Psychotherapy of the borderline adult: A developmental approach*. Brunner-Mazel.

Masterson, J. F., & Rinsley, D. B. (1975). The borderline syndrome: The role of the mother in the genesis and psychic structure of the borderline personality. *International Journal of Psychoanalysis*, *56*, 163-177.

McGlashan, T. H. (1986). The Chestnut Lodge follow-up study: III. Long-term outcome of borderline personalities. *Archives of General Psychiatry*, *43*(1), 20-30.

McGlashan, T. H. (1987). Testing DSM-III symptom criteria for schizotypal and borderline personality disorders. *Archives of General Psychiatry*, *44*(2), 143-148.

McGlashan, T. H., Grilo, C. M., Skodol, A. E., Gunderson, J. G., Shea, M. T., Morey, L. C., Zanarini, M. C., & Stout, R. L. (2000). The collaborative longitudinal personality disorders study: Baseline axis I/II and II/II diagnostic co-occurrence. *Acta Psychiatr Scand*, *102*(4), 256-264. https://doi.org/ 10.1034/j.1600-0447.2000.102004256.x

McMain, S. F., Links, P. S., Gnam, W. H., Guimond, T., Cardish, R. J., Korman, L., & Streiner, D. L. (2009). A randomized trial of dialectical behavior therapy versus general psychiatric management for borderline personality disorder. *American Journal of Psychiatry*, *166*(12), 1365-1374. https://doi.org/10.1176/appi.ajp.2009.09010039

McQuillan, A., Nicastro, R., Guenot, F., Girard, M., Lissner, C., & Ferrero, F. (2005). Intensive dialectical behavior therapy for outpatients with borderline personality disorder who are in crisis. *Psychiatric Services*, *56*(2), 193-197. https://doi.org/10.1176/appi.ps.56.2.193

Meares, R., Gerull, F., Stevenson, J., & Korner, A. (2011). Is self disturbance the core of borderline personality disorder? An outcome study of borderline personality

factors. *The Australian and New Zealand Journal of Psychiatry*, *45*(3), 214-222. https://doi.org/10.3109/00048674.2010.551280

Mehlum, L., Friis, S., Vaglum, P., & Karterud, S. (1994). The longitudinal pattern of suicidal behaviour in borderline personality disorder: A prospective follow-up study. *Acta Psychiatr Scand*, *90*, 124-130. https://doi.org/10.1111/j.1600-0447.1994.tb01567.x

Meuldijk, D., McCarthy, A., Bourke, M. E., & Grenyer, B. F. S. (2017). The value of psychological treatment for borderline personality disorder: Systematic review and cost offset analysis of economic evaluations. *PLoS One*, *12*(3), e0171592. https://doi.org/10.1371/journal.pone.0171592.

Miller, C. E., Lewis, K. L., Huxley, E., Townsend, M. L., & Grenyer, B. F. S. (2018). A 1-year follow-up study of capacity to love and work: What components of borderline personality disorder most impair interpersonal and vocational functioning? *Personality and Mental Health*, *12*(4), 334-344. https://doi.org/10.1002/pmh.1432

Miller, C. E., Townsend, M. L., Day, N. J. S., & Grenyer, B. F. S. (2020). Measuring the shadows: A systematic review of chronic emptiness in borderline personality disorder. *PLoS One*, *15*(7), e0233970. https://doi.org/10.1371/journal.pone.0233970

Miocevic, M., O'Rourke, H. P., MacKinnon, D. P., & Brown, H. C. (2017). Statistical properties of four effect-size measures for mediation models. *Behaviour Research Methods*. https://doi.org/10.3758/s13428-017-0870-1

Miskewicz, K., Fleeson, W., Arnold, E. M., Law, M. K., Mneimne, M., & Furr, R. M. (2015). A contingency-oriented approach to understanding borderline

personality disorder: Situational triggers and symptoms. *Journal of Personality Disorders, 29*(4), 486-502. https://doi.org/10.1521/pedi.2015.29.4.486.

Modestin, J., Oberson, B., & Erni, T. (1998). Identity disturbance in personality disorders. *Comprehensive Psychiatry, 39*(6), 352-357. https://doi.org/10.1016/S0010-440X(98)90047-5

Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & Prisma Group. (2010). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *Annals of Internal Medicine, 151*(4), 264-269. https://doi.org/0.1371/journal.pmed.1000097

Morgan, T. A., Chelminski, I., Young, D., Dalrymple, K., & Zimmerman, M. (2013). Differences between older and younger adults with borderline personality disorder on clinical presentation and impairment. *Journal of Psychiatric Research, 47*(10), 1507-1513. https://doi.org/10.1016/j.jpsychires.2013.06.009

Morton, J., Snowdon, S., Gopold, M., & Guymer, E. (2012). Acceptance and commitment therapy group treatment for symptoms of borderline personality disorder: A public sector pilot study. *Cognitive and Behavioral Practice, 19*(4), 527-544. https://doi.org/10.1016/j.cbpra.2012.03.005

New, A. S., Rot, M. a. h., Ripoll, L. H., Perez-Rodriguez, M. M., Lazarus, S., Zipursky, E., Weinstein, S. R., Koenigsberg, H. W., Hazlett, E. A., & Goodman, M. (2012). Empathy and alexithymia in borderline personality disorder: clinical and laboratory measures. *Journal of Personality Disorders, 26*(5), 660-675. https://doi.org/10.1521/pedi.2012.26.5.660

New South Wales Department of Health. (2001). *Your guide to MH-OAT: Clinicians' reference guide to NSW Mental Health Outcomes and Assessment Tools*. NSW Department of Health.

Ng, F. Y., Bourke, M. E., & Grenyer, B. F. (2016). Recovery from borderline personality disorder: A systematic review of the perspectives of consumers, clinicians, family and carers. *PLoS One, 11*(8), e0160515. https://doi.org/10.1371/journal.pone.0160515

Nicastro, R., Prada, P., Kung, A.-L., Salamin, V., Dayer, A., Aubry, J.-M., Guenot, F., & Perroud, N. (2016). Psychometric properties of the French borderline symptom list, short form (BSL-23). *Borderline Personality Disorder and Emotion Dysregulation, 3*(4), 1-9. https://doi.org/10.1186/s40479-016-0038-0

Nisenbaum, R., Links, P. S., Eynan, R., & Heisel, M. (2010). Variability and predictors of negative mood intensity in patients with borderline personality disorder and recurrent suicidal behavior: Multilevel analyses applied to experience sampling methodology. *Journal of Abnormal Psychology, 119*(2), 433. https://doi.org/10.1037/a0018696

Ntshingila, N., Poggenpoel, M., Myburgh, C., & Temane, A. (2016). Experiences of women living with borderline personality disorder. *Health SA Gesondheid, 21*(1), 110-119. https://doi.org/10.1016/j.hsag.2016.01.001

Nurnberg, H. G., Feldman, A., Hurt, S. W., & Suh, R. (1986). Core criteria for diagnosing borderline patients. *Hillside Journal of Clinical Psychiatry, 8*(2), 111-131.

Nurnberg, H. G., Hurt, S. W., Feldman, A., & Suh, R. (1987). Efficient diagnosis of borderline personality disorder. *Journal of Personality Disorders, 1*(4), 307-316.

Nurnberg, H. G., Raskin, M., Levine, P. E., Pollack, S., Siegel, O., & Prince, R. (1991). Hierarchy of DSM-III-R criteria efficiency for the diagnosis of borderline personality disorder. *Journal of Personality Disorders, 5*(3), 211-224. https://doi.org/10.1521/pedi.1991.5.3.211

Ohshima, T. (2001). Borderline personality traits in hysterical neurosis. *Psychiatry and Clinical Neurosciences, 55*(2), 131-136. https://doi.org/10.1046/j.1440-1819.2001.00800.x

Oldham, J. M., Skodol, A. E., Gallaher, P. E., & Kroll, M. E. (1996). Relationship of borderline symptoms to histories of abuse and neglect: A pilot study. *Psychiatric Quarterly, 67*(4), 287-295. https://doi.org/10.1007/BF02326372

OPD Task Force. (2008). *Operationalized psychodynamic diagnosis OPD-2: Manual of diagnosis and treatment planning*. Hogrefe Publishing.

Orbach, I., Mikulincer, M., Sirota, P., & Gilboa-Schechtman, E. (2003). Mental pain: A multidimensional operationalization and definition. *Suicide and Life-Threatening Behavior, 33*(3), 219-230. https://doi.org/10.1521/suli.33.3.219.23219

Oud, M., Arntz, A., Hermens, M. L., Verhoef, R., & Kendall, T. (2018). Specialized psychotherapies for adults with borderline personality disorder: A systematic review and meta-analysis. *Australian and New Zealand Journal of Psychiatry, 52*(10), 949-961. https://doi.org/10.1177/0004867418791257

Pace, R., Pluye, P., Bartlett, G., Macaulay, A. C., Salsberg, J., Jagosh, J., & Seller, R. (2012). Testing the reliability and efficiency of the pilot Mixed Methods Appraisal Tool (MMAT) for systematic mixed studies review. *International*

Journal of Nursing Studies, 49(1), 47-53. https://doi.org/10.1016/j.ijnurstu.2011.07.002

Paris, J. (2002). Chronic suicidality among patients with borderline personality disorder. *Psychiatric Services, 53*(6), 738-742. https://doi.org/10.1176/appi.ps.53.6.738

Paris, J. (2019). Suicidality in Borderline Personality Disorder. *Medicina, 55*(6), 223. https://doi.org/10.3390/medicina55060223

Paris, J., Brown, R., & Nowlis, D. (1987). Long-term follow-up of borderline patients in a general hospital. *Comprehenive Psychiatry, 28*(6), 530-535. https://doi.org/10.1016/0010-440x(87)90019-8

Paris, J., & Zweig-Frank, H. (2001). The 27-year follow-up of patients with borderline personality disorder. *Comprehensive Psychiatry, 42*(6), 482-487. https://doi.org/10.1053/comp.2001.26271

Patterson, D. A., & Lee, M. (1995). Field trial of the global assessment of functioning scale - modified. *American Journal of Psychiatry, 152*(9), 1386-1388. https://doi.org/10.1176/ajp.152.9.1386

Pazzagli, A., & Monti, M. R. (2000). Dysphoria and aloneness in borderline personality disorder. *Psychopathology, 33*(4), 220-226. https://doi.org/10.1159/000029147

Pérez, S., Marco, J. H., & García-Alandete, J. (2014). Comparison of clinical and demographic characteristics among borderline personality disorder patients with and without suicidal attempts and non-suicidal self-injury behaviors. *Psychiatry Research, 220*(3), 935-940. https://doi.org/10.1016/j.psychres.2014.09.001

Perroud, N., Salzmann, A., Prada, P., Nicastro, R., Hoeppli, M., Furrer, S., Ardu, S., Krejci, I., Karege, F., & Malafosse, A. (2013). Response to psychotherapy in

borderline personality disorder and methylation status of the BDNF gene. *Translational Psychiatry, 3*(1), e207. https://doi.org/10.1038/tp.2012.140

Pfohl, B., Blum, N., & Zimmerman, M. (1997). *Structured Interview for DSM-IV Personality* American Psychiatric Press.

Pinto, A., Grapentine, W. L., Francis, G., & Picariello, C. M. (1996). Borderline personality disorder in adolescents: Affective and cognitive features. *Journal of the American Academy of Child & Adolescent Psychiatry, 35*(10), 1338-1343. https://doi.org/10.1097/00004583-199610000-00021

Plakun, E. M. (1991). Prediction of outcome in borderline personality disorder. *Journal of Personality Disorders, 5*(2), 93-101. https://doi.org/10.1521/pedi.1991.5.2.93

Pluye, P., Gagnon, M.-P., Griffiths, F., & Johnson-Lafleur, J. (2009). A scoring system for appraising mixed methods research, and concomitantly appraising qualitative, quantitative and mixed methods primary studies in mixed studies reviews. *International Journal of Nursing Studies, 46*(4), 529-546. https://doi.org/10.1016/j.ijnurstu.2009.01.009

Pompili, M., Girardi, P., Ruberto, A., & Tatarelli, R. (2005). Suicide in borderline personality disorder: a meta-analysis. *Nordic Journal of Psychiatry, 59*(5), 319-324. https://doi.org/10.1080/08039480500320025

Powers, A. D., Gleason, M. E., & Oltmanns, T. F. (2013). Symptoms of borderline personality disorder predict interpersonal (but not independent) stressful life events in a community sample of older adults. *Journal of Abnormal Psychology, 122*(2), 469. https://doi.org/10.1037/a0032363

Preißler, S., Dziobek, I., Ritter, K., Heekeren, H. R., & Roepke, S. (2010). Social cognition in borderline personality disorder: evidence for disturbed recognition

of the emotions, thoughts, and intentions of others. *Frontiers in Behavioral Neuroscience, 4*, 182. https://doi.org/10.3389/fnbeh.2010.00182

Price, A., Mahler, H., & Hopwood, C. (2019). Subjective Emptiness: A Clinically Significant Trans-diagnostic Psychopathology Construct. *(pre-print)*. https://doi.org/10.31235/osf.io/f2x6r

Price, A. L., Mahler, H. I. M., & Hopwood, C. J. (2020). Construction and validation of a self-report subjective emptiness scale. *Assessment*, 1073191120968275.

Rallis, B. A., Deming, C. A., Glenn, J. J., & Nock, M. K. (2012). What is the role of dissociation and emptiness in the occurrence of nonsuicidal self-injury? *Journal of Cognitive Psychotherapy, 26*(4), 287-298. https://doi.org/10.1891/0889-8391.26.4.287

Rebok, F., Teti, G. L., Fantini, A. P., Cárdenas-Delgado, C., Rojas, S. M., Derito, M. N., & Daray, F. M. (2015). Types of borderline personality disorder (BPD) in patients admitted for suicide-related behavior. *Psychiatric Quarterly*, *86*(1), 49-60. https://doi.org/10.1007/s11126-014-9317-3

Rhodes, J. E., Hackney, S. J., & Smith, J. A. (2018). Emptiness, engulfment, and life struggle: an interpretative phenomenological analysis of chronic depression. *Journal of Constructivist Psychology*, *32*(4), 1-18. https://doi.org/10.1080/10720537.2018.1515046

Richman, N. E., & Sokolove, R. L. (1992). The experience of aloneness, object representation, and evocative memory in borderline and neurotic patients. *Psychoanalytic Psychology, 9*(1), 77-91. https://doi.org/10.1037/h0079323

Rippetoe, P. A., Alarcon, R. D., & Walter-Ryan, W. G. (1986). Interactions between depression and borderline personality disorder. *Psychopathology*, *19*(6), 340-346. https://doi.org/10.1159/000284458

Roberts, K., Dowell, A., & Nie, J. B. (2019, Mar 28). Attempting rigour and replicability in thematic analysis of qualitative research data; a case study of codebook development. *BMC Med Res Methodol*, *19*(1), 66. https://doi.org/10.1186/s12874-019-0707-y

Rogers, J. H., Widiger, T. A., & Krupp, A. (1995). Aspects of depression associated with borderline personality disorder. *American Journal of Psychiatry*, *152*, 268-270. https://doi.org/10.1176/ajp.152.2.268

Roulston, K., & Shelton, S. A. (2015). Reconceptualizing bias in teaching qualitative research methods. *Qualitative Inquiry*, *21*(4), 332-342. https://doi.org/10.1177/1077800414563803

Rowling, J. (1999). *Harry Potter and the Prisoner of Azkaban*. Bloomsbury.

Sagan, O. (2017). The loneliness of personality disorder: A phenomenological study. *Mental Health and Social Inclusion*, *21*(4), 213-221. https://doi.org/10.1108/MHSI-04-2017-0020

Sanislow, C. A., Grilo, C. M., & McGlashan, T. H. (2000). Factor analysis of the DSM-III-R borderline personality disorder criteria in psychiatric inpatients. *American Journal of Psychiatry*, *157*(10), 1629-1633. https://doi.org/10.1176/appi.ajp.157.10.1629

Sansone, R. A. (2004). Chronic suicidality and borderline personality. *Journal of Personality Disorders*, *18*(3), 215-225. https://doi.org/10.1521/pedi.18.3.215.35444

Sansone, R. A., Leung, J. S., & Wiederman, M. W. (2012). Employment histories among patients with borderline personality disorder symptomatology. *Journal of Vocational Rehabilitation, 37*(2), 131-137. https://doi.org/10.3233/JVR-2012-0606

Scheel, C. N., Schneid, E.-M., Tuescher, O., Lieb, K., Tuschen-Caffier, B., & Jacob, G. A. (2013). Effects of shame induction in borderline personality disorder. *Cognitive Therapy and Research, 37*(6), 1160-1168. https://doi.org/10.1007/s10608-013-9567-7

Sempértegui, G. A., Karreman, A., Arntz, A., & Bekker, M. H. J. (2013). Schema therapy for borderline personality disorder: A comprehensive review of its empirical foundations, effectiveness and implementation possibilities. *Clinical Psychology Review, 33*(3), 426-447. https://doi.org/10.1016/j.cpr.2012.11.006

Sharma, L., Markon, K. E., & Clark, L. A. (2014). Toward a theory of distinct types of "impulsive" behaviors: A meta-analysis of self-report and behavioral measures. *Psychological Bulletin, 140*(2), 374-408. https://doi.org/10.1037/a0034418

Sharp, C., & Vanwoerden, S. (2015). Hypermentalizing in borderline personality disorder: A model and data. *Journal of Infant, Child, and Adolescent Psychotherapy, 14*(1), 33-45. https://doi.org/10.1080/15289168.2015.1004890

Shenk, C. E., & Fruzzetti, A. E. (2011). The impact of validating and invalidating responses on emotional reactivity. *Journal of Social and Clinical Psychology, 30*(2), 163-183. https://doi.org/10.1521/jscp.2011.30.2.163

Silk, K. R. (2010). The quality of depression in borderline personality disorder and the diagnostic process. *Journal of Personality Disorders, 24*(1), 25-37. https://doi.org/10.1521/pedi.2010.24.1.25

Silk, K. R., Lee, S., Hill, E. M., & Lohr, N. E. (1995). Borderline personality disorder symptoms and severity of sexual abuse. *American Journal of Psychiatry, 152*, 1059-1064. https://doi.org/10.1176/ajp.152.7.1059

Singer, M. (1977). The Experience of Emptiness in Narcissistic and Borderline States: II. the Struggle for a Sense of Self and the Potential for Suicide. *International Review of Psycho-Analysis, 4*, 471-479.

Sio, I. T., Chanen, A. M., Killackey, E. J., & Gleeson, J. (2011). The relationship between impulsivity and vocational outcome in outpatient youth with borderline personality features. *Early Intervention in Psychiatry, 5*(3), 249-253. https://doi.org/10.1111/j.1751-7893.2011.00271.x

Skinstad, A. H., Troland, K., & Mortensen, J. K. (1999). Rorschach responses in Borderline Personality Disorder with alcohol dependence. *European Journal of Psychological Assessment, 15*(2), 133. https://doi.org/10.1027//1015-5759.15.2.133

Skodol, A., Stein, M., & Hermann, R. (2019). Borderline personality disorder: Epidemiology, pathogenesis, clinical features, course, assessment, and diagnosis. In T. Post (Ed.), *UpToDate*. UpToDate.

Skodol, A. E., Gunderson, J. G., McGlashan, T. H., Dyck, I. R., Stout, R. L., Bender, D. S., Grilo, C. M., Shea, M. T., Zanarini, M. C., Morey, L. C., Sanislow, C. A., & Oldham, J. M. (2002a). Functional impairment in patients with schizotypal, borderline, avoidant or obsessive-compulsive personality disorder. *American Journal of Psychiatry, 159*, 276-283. https://doi.org/10.1176/appi.ajp.159.2.276

Skodol, A. E., Gunderson, J. G., Pfohl, B., Widiger, T. A., Livesley, W. J., & Siever, L. J. (2002b). The borderline diagnosis I: psychopathology, comorbidity, and personaltity structure. *Biological psychiatry, 51*(12), 936-950.

Skodol, A. E., Pagano, M. E., Bender, D. S., Tracie Shea, M., Gunderson, J. G., Yen, S., Stout, R. L., Morey, L. C., Sanislow, C. A., Grilo, C. M., Zanarini, M. C., & McGlashan, T. H. (2005). Stability of functional impairment in patients with schizotypal, borderline, avoidant, or obsessive–compulsive personality disorder over two years. *Psychological Medicine, 35*(3), 443-451. https://doi.org/10.1017/s003329170400354x

Soeteman, D. I., Hakkaart-van Roijen, L., Verheul, R., & Busschbach, J. (2008). The economic burden of personality disorders in mental health care. *Journal of Clinical Psychiatry, 69*, 259-265. https://doi.org/10.4088/jcp.v69n0212

Soloff, P. H., Lis, J. A., Kelly, T., Cornelius, J. R., & Ulrich, R. (1994). Risk factors for suicidal behavior in borderline personality disorder. *The American Journal of Psychiatry*. https://doi.org/10.1176/ajp.151.9.1316

Soloff, P. H., Lynch, K. G., & Kelly, T. M. (2002). Childhood abuse as a risk factor for suicidal behavior in borderline personality disorder. *Journal of Personality Disorders, 16*(3), 201-214. https://doi.org/10.1521/pedi.16.3.201.22542

Soloff, P. H., Lynch, K. G., Kelly, T. M., Malone, K. M., & Mann, J. J. (2000). Characteristics of suicide attempts of patients with major depressive episode and borderline personality disorder: A comparative study. *American Journal of Psychiatry*, *157*(4), 601-608. https://doi.org/10.1176/appi.ajp.157.4.601

Southward, M. W., & Cheavens, J. S. (2018). Identifying core deficits in a dimensional model of Borderline Personality Disorder features: A network analysis. *Clinical*

Psychological Science, 6(5), 685-703. https://doi.org/10.1177/2167702618769560

Speranza, M., Pham-Scottez, A., Revah-Levy, A., Barbe, R. P., Perez-Diaz, F., Birmaher, B., & Corcos, M. (2012). Factor structure of borderline personality disorder symptomatology in adolescents. *The Canadian Journal of Psychiatry, 57*(4), 230-237. https://doi.org/10.1177/070674371205700406

Stanley, B., Gameroff, M. J., Michalsen, V., & Mann, J. J. (2001). Are suicide attempters who self-mutilate a unique population? *American Journal of Psychiatry, 158*(3), 427-432. https://doi.org/10.1176/appi.ajp.158.3.427

Startup, M., Jackson, M. C., & Bendix, S. (2002). The concurrent validity of the Global Assessment of Functioning (GAF). *British Journal of Clinical Psychology, 41*(4), 417-422. https://doi.org/10.1348/014466502760387533

Stepp, S. D., Hallquist, M. N., Morse, J. Q., & Pilkonis, P. A. (2011). Multimethod investigation of interpersonal functioning in borderline personality disorder. *Personality Disorders: Theory, Research, and Treatment, 2*(3), 175-192. https://doi.org/10.1037/a0020572

Stepp, S. D., Lazarus, S. A., & Byrd, A. L. (2016). A systematic review of risk factors prospectively associated with borderline personality disorder: Taking stock and moving forward. *Personality Disorders: Theory, Research, and Treatment, 7*(4), 316-323. https://doi.org/10.1037/per0000186

Stepp, S. D., Pilkonis, P. A., Yaggi, K. E., Morse, J. Q., & Feske, U. (2009, Jul). Interpersonal and emotional experiences of social interactions in borderline personality disorder. *The Journal of Nervous Mental Disease, 197*(7), 484-491. https://doi.org/10.1097/NMD.0b013e3181aad2e7

Stern, A. (1938). Psychoanalytic investigation of and therapy in the border line group of neuroses. *The Psychoanalytic Quarterly*, *7*(4), 467-489.

Stiglmayr, C., Grathwol, T., Linehan, M., Ihorst, G., Fahrenberg, J., & Bohus, M. (2005). Aversive tension in patients with borderline personality disorder: a computer-based controlled field study. *Acta Psychiatr Scand*, *111*(5), 372-379. https://doi.org/10.1111/j.1600-0447.2004.00466.x

Stiglmayr, C. E., Shapiro, D. A., Stieglitz, R. D., Limberger, M. F., & Bohus, M. (2001). Experience of aversive tension and dissociation in female patients with borderline personality disorder—a controlled study. *Journal of Psychiatric Research*, *35*(2), 111-118. https://doi.org/10.1016/s0022-3956(01)00012-7

Stoffers, J., Völlm, B. A., Rücker, G., Timmer, A., Huband, N., & Lieb, K. (2010). Pharmacological interventions for borderline personality disorder. *Cochrane Database of Systematic Reviews*(6). https://doi.org/10.1002/14651858.CD005653.pub2

Stone, M. H., Hurt, S. W., & Stone, D. K. (1987a). The PI 500: Long-term follow-up of borderline inpatients meeting DSM-III criteria I. Global outcome. *Journal of Personality Disorders*, *1*(4), 291-298. https://doi.org/10.1521/pedi.1987.1.4.291

Stone, M. H., Stone, D. K., & Hurt, S. W. (1987b). Natural history of borderline patients treated by intensive hospitalization. *Psychiatric Clinics*, *10*(2), 185-206. https://doi.org/10.1016/S0193-953X(18)30563-X

Taylor, J., & Reeves, M. (2007). Structure of borderline personality disorder symptoms in a nonclinical sample. *Journal of Clinical Psychology*, *63*(9), 805-816. https://doi.org/10.1002/jclp.20398

Taylor, S., & Goritsas, E. (1994). Dimensions of identity diffusion. *Journal of Personality Disorders, 8*(3), 229-239. https://doi.org/10.1521/pedi.1994.8.3.229

Temes, C. M., Frankenburg, F. R., Fitzmaurice, G. M., & Zanarini, M. C. (2019). Deaths by Suicide and Other Causes Among Patients With Borderline Personality Disorder and Personality-Disordered Comparison Subjects Over 24 Years of Prospective Follow-Up. *The Journal of Clinical Psychiatry, 80*(1). https://doi.org/10.4088/JCP.18m12436

Terry, G., Hayfield, N., Clarke, V., & Braun, V. (2017). Thematic Analysis. In C. Willig & W. Rogers (Eds.), *The SAGE Handbook of Qualitative Research in Psychology* (pp. 17-36). SAGE Publications Ltd.

Thome, J., Liebke, L., Bungert, M., Schmahl, C., Domes, G., Bohus, M., & Lis, S. (2016). Confidence in facial emotion recognition in borderline personality disorder. *Personality Disorders: Theory, Research, and Treatment, 7*(2), 159-168. https://doi.org/10.1037/t71047-000

Tomko, R. L., Trull, T. J., Wood, P. K., & Sher, K. J. (2014). Characteristics of borderline personality disorder in a community sample: comorbidity, treatment utilization, and general functioning. *Journal of Personality Disorders, 28*(5), 734-750. https://doi.org/10.1521/pedi_2012_26_093

Troyat, H. (1967). *Tolstoy*. Doubleday.

Trull, T. J., & Widiger, T. A. (1991). The relationship between borderline personality disorder criteria and dysthymia symptoms. *Journal of Psychopathology and Behavioral Assessment, 13*(2), 91-105. https://doi.org/10.1007/BF00961425

Van Orden, K. A., Witte, T. K., Cukrowicz, K. C., Braithwaite, S. R., Selby, E. A., & Joiner Jr, T. E. (2010). The interpersonal theory of suicide. *Psychological Review, 117*(2), 575. https://doi.org/10.1037/a0018697

Vardy, Y., Day, N. J., & Grenyer, B. F. (2019). Development and validation of an experience of time alone scale for borderline personality disorder. *PLoS One, 14*(5), 1-21. https://doi.org/10.1371/journal.pone.0217350

Verardi, S., Nicastro, R., McQuillan, A., Keizer, I., & Rossier, J. (2008). The personality profile of borderline personality disordered patients using the five-factor model of personality. *International Journal of Clinical Health Psychology, 8*(2). https://doi.org/10.1016/j.biopsych.2009.07.017

Verkes, R. J., Van der Mast, R. C., Kerkhof, A. J., Fekkes, D., Hengeveld, M. W., Tuyl, J. P., & Van Kempen, G. M. (1998). Platelet serotonin, monoamine oxidase activity, and [3H] paroxetine binding related to impulsive suicide attempts and borderline personality disorder. *Biological Psychiatry, 43*(10), 740-746. https://doi.org/10.1016/S0006-3223(97)00317-X

Videler, A. C., Hutsebaut, J., Schulkens, J. E., Sobczak, S., & Van Alphen, S. P. (2019). A life span perspective on borderline personality disorder. *Current Psychiatry Reports, 21*(7), 51. https://doi.org/10.1007/s11920-019-1040-1

Villeneuve, E., & Lemelin, S. (2005). Open-label study of atypical neuroleptic quetiapine for treatment of borderline personality disorder: Impulsivity as main target. *The Journal of Clinical Psychiatry, 66*(10), 1298-1303. https://doi.org/10.4088/jcp.v66n1013

Wedig, M. M., Frankenburg, F. R., Reich, D. B., Fitzmaurice, G., & Zanarini, M. C. (2013). Predictors of suicide threats in patients with borderline personality

disorder over 16 years of prospective follow-up. *Psychiatry Research, 208*(3), 252-256. https://doi.org/10.1016/j.psychres.2013.05.009

Westen, D., Moses, J., Silk, K. R., Lohr, N. E., Cohen, R., & Segal, H. (1992). Quality of depressive experience in borderline personality disorder and major depression: When depression is not just depression. *Journal of Personality Disorders, 6*(4), 392-393. https://doi.org/10.1521/pedi.1992.6.4.382

Widiger, T. A., & Trull, T. J. (2007). Plate tectonics in the classification of personality disorder: shifting to a dimensional model. *American Psychologist, 62*(2), 71.

Wilberg, T., Urnes, O., Friis, S., Pederson, G., & Karterud, S. (1999). One-year follow-up of day treatments for poorly functioning patients with personality disorders. *Psychiatric Services, 50*, 1326-1330.

Willig, C., & Rogers, W. S. (2017). *The SAGE handbook of qualitative research in psychology*. Sage.

Winnicott, D., W. (1974). Fear of breakdown. *International Review of Psychoanalysis*(1), 103-107.

Winnicott, D. W. (1984). *The maturational processes and the facilitating environment: Studies in the theory of emotional development*. Routledge.

Winograd, G., Cohen, P., & Chen, H. (2008). Adolescent borderline symptoms in the community: prognosis for functioning over 20 years. *J Child Psychol Psychiatry, 49*(9), 933-941. https://doi.org/10.1111/j.1469-7610.2008.01930.x

Winsper, C. (2018). The aetiology of borderline personality disorder (BPD): contemporary theories and putative mechanisms. *Current Opinion in Psychology, 21*, 105-110. https://doi.org/0.1016/j.copsyc.2017.10.005

Winsper, C., Bilgin, A., Thompson, A., Marwaha, S., Chanen, A. M., Singh, S. P., Wang, A., & Furtado, V. (2020a). The prevalence of personality disorders in the community: a global systematic review and meta-analysis. *The British Journal of Psychiatry, 216*(2), 69-78.

Winsper, C., Bilgin, A., & Wolke, D. (2020b). Associations between infant and toddler regulatory problems, childhood co-developing internalising and externalising trajectories, and adolescent depression, psychotic and borderline personality disorder symptoms. *Journal of Child Psychology and Psychiatry, 61*(2), 182-194.

Winsper, C., Hall, J., Strauss, V. Y., & Wolke, D. (2017). Aetiological pathways to Borderline Personality Disorder symptoms in early adolescence: childhood dysregulated behaviour, maladaptive parenting and bully victimisation. *Borderline personality disorder and emotion dysregulation, 4*(1), 10-20. https://doi.org/10.1186/s40479-017-0060-x

Winter, D., Herbert, C., Koplin, K., Schmahl, C., Bohus, M., & Lis, S. (2015). Negative evaluation bias for positive self-referential information in borderline personality disorder. *PLoS One, 10*(1), e0117083. https://doi.org/10.1371/journal.pone.0117083

World Health Organisation. (2018). *International classification of diseases for mortality and morbidity statistics*. https://icd.who.int/browse11/l-m/en

Yen, S., Johnson, J., Costello, E., & Simpson, E. B. (2009). A 5-day dialectical behavior therapy partial hospital program for women with borderline personality disorder: predictors of outcome from a 3-month follow-up study. *Journal of Psychiatric Practice, 15*(3), 173-182. https://doi.org/10.1097/01.pra.0000351877.45260.70

Young, J. E., Klosko, J. S., & Weishaar, M. E. (2006). *Schema therapy: A practitioner's guide*. Guilford Press.

Zanarini, M. C., Frankenburg, F. R., DeLuca, C. J., Hennen, J., Khera, G. S., & Gunderson, J. G. (1998a). The pain of being borderline: dysphoric states specific to borderline personality disorder. *Harvard Review of Psychiatry, 6*(4), 201-207. https://doi.org/10.3109/10673229809000330

Zanarini, M. C., Frankenburg, F. R., Dubo, E. D., Sickel, A. E., Trikha, A., Levin, A., & Reynolds, V. (1998b). Axis I comorbidity of borderline personality disorder. *American Journal of Psychiatry, 155*(12), 1733-1739. https://doi.org/10.1176/ajp.155.12.1733

Zanarini, M. C., Frankenburg, F. R., Hennen, J., Reich, B., & Silk, K. R. (2005). Psychosocial functioning of borderline patients and axis II comparison subjects followed prospectively for six years. *Journal of Personality Disorders, 19*(1), 19-29. https://doi.org/10.1521/pedi.19.1.19.62178

Zanarini, M. C., Frankenburg, F. R., Reich, D. B., & Fitzmaurice, G. (2010a). The 10-year course of psychosocial functioning among patients with borderline personality disorder and axis II comparison subjects. *Acta Psychiatr Scand, 122*(2), 103-109. https://doi.org/10.1111/j.1600-0447.2010.01543.x

Zanarini, M. C., Frankenburg, F. R., Reich, D. B., & Fitzmaurice, G. (2010b). Time to attainment of recovery from borderline personality disorder and stability of recovery: A 10-year prospective follow-up study. *American Journal of Psychiatry*, *167*(6), 663-667. https://doi.org/10.1176/appi.ajp.2009.09081130

Zanarini, M. C., Frankenburg, F. R., Reich, D. B., & Fitzmaurice, G. (2012). Attainment and stability of sustained symptomatic remission and recovery among patients

with borderline personality disorder and Axis II comparison subjects: A 16-year prospective follow-up study. *American Journal of Psychiatry, 169*, 476-483. https://doi.org/10.1176/appi.ajp.2011.11101550

Zanarini, M. C., Frankenburg, F. R., Reich, D. B., & Fitzmaurice, G. M. (2016). Fluidity of the subsyndromal phenomenology of borderline personality disorder over 16 years of prospective follow-Up. *Am J Psychiatry, 173*(7), 688-694. https://doi.org/10.1176/appi.ajp.2015.15081045

Zanarini, M. C., Frankenburg, F. R., Reich, D. B., Silk, K. R., Hudson, J. I., & McSweeney, L. B. (2007). The subsyndromal phenomenology of borderline personality disorder: a 10-year follow-up study. *American Journal of Psychiatry, 164*(6), 929-935. https://doi.org/10.1176/ajp.2007.164.6.929

Zanarini, M. C., Gunderson, J. G., Frankenburg, F. R., & Chauncey, D. L. (1989). The revised diagnostic interview for borderlines: Discriminating BPD from other axis II disorders. *Journal of Personality Disorders, 3*(1), 10-18. https://doi.org/10.1521/pedi.1989.3.1.10

Zanarini, M. C., Jacoby, R. J., Frankenburg, F. R., Reich, D. B., & Fitzmaurice, G. (2009). The 10-year course of social security disability income reported by patients with borderline personality disorder and axis II comparison subjects. *Journal of personality disorders, 23*(4), 346-356. https://doi.org/10.1521/pedi.2009.23.4.346

Zanarini, M. C., Vujanovic, A. A., Parachini, E. A., Boulanger, B. S., Frankenburg, F. R., & Hennen, J. (2003). A screening measure for BPD: The McLean screening instrument for borderline personality disorder (MSI-BPD). *Journal of Personality Disorders, 17*(6), 568-573. https://doi.org/10.1521/pedi.17.6.568.25355

7. Appendices

7.1 Appendix 1 - PDF of Study One published in PLOS ONE

PLOS ONE

RESEARCH ARTICLE

Measuring the shadows: A systematic review of chronic emptiness in borderline personality disorder

Caitlin E. Miller[1,2], **Michelle L. Townsend**[1,2], **Nicholas J. S. Day**[1,2], **Brin F. S. Grenyer**[1,2]*

1 School of Psychology, University of Wollongong, Wollongong, NSW, Australia, **2** Illawarra Health and Medical Research Institute, University of Wollongong, Wollongong, NSW, Australia

* grenyer@uow.edu.au

OPEN ACCESS

Citation: Miller CE, Townsend ML, Day NJS, Grenyer BFS (2020) Measuring the shadows: A systematic review of chronic emptiness in borderline personality disorder. PLoS ONE 15(7): e0233970. https://doi.org/10.1371/journal.pone.0233970

Editor: Stephan Doering, Medical University of Vienna, AUSTRIA

Received: October 24, 2019

Accepted: May 15, 2020

Published: July 1, 2020

Data Availability Statement: All relevant data are within the manuscript and its Supporting Information files.

Funding: This research is supported by a scholarship awarded to CEM by the School of Psychology, University of Wollongong and Project Air Strategy that acknowledges the support of the NSW Ministry of Health. The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

Abstract

Background

Chronic feelings of emptiness is an under-researched symptom of borderline personality disorder (BPD), despite indications it may be central to the conceptualisation, course, and outcome of BPD treatment. This systematic review aimed to provide a comprehensive overview of chronic feelings of emptiness in BPD, identify key findings, and clarify differences between chronic feelings of emptiness and related constructs like depression, hopelessness, and loneliness.

Method

A PRISMA guided systematic search of the literature identified empirical studies with a focus on BPD or BPD symptoms that discussed chronic feelings of emptiness or a related construct.

Results

Ninety-nine studies met criteria for inclusion in the review. Key findings identified there were significant difficulties in defining and measuring chronic emptiness. However, based on the studies reviewed, chronic emptiness is a sense of disconnection from both self and others. When experienced at frequent and severe levels, it is associated with low remission for people with BPD. Emptiness as a construct can be separated from hopelessness, loneliness and intolerance of aloneness, however more research is needed to explicitly investigate these experiences. Chronic emptiness may be related to depressive experiences unique to people with BPD, and was associated with self-harm, suicidality, and lower social and vocational function.

Conclusions and implications

We conclude that understanding chronic feelings of emptiness is central to the experience of people with BPD and treatment focusing on connecting with self and others may help alleviate a sense of emptiness. Further research is required to provide a better understanding of

Competing interests: The authors have declared that no competing interests exist.

the nature of chronic emptiness in BPD in order to develop ways to quantify the experience and target treatment.

Systematic review registration number: CRD42018075602.

Introduction

'To define accurately what the word [emptiness] means in any context can feel like trying to find a light switch in a totally dark and unfamiliar room' [1, p. 331].

Borderline personality disorder (BPD) is a complex mental disorder characterised by a pervasive instability of self-concept, emotions, and behaviour [2]. Globally, lifetime prevalence of BPD is estimated at approximately 6% [3], but individuals with BPD can account for up to 20.5% of emergency department presentations and 26.6% of inpatient psychological services [4]. Within personality disorder research, the landscape of formulation and diagnosis is evolving, and there is a need to research features of BPD which are important in both traditional categorical and emerging dimensional approaches [5]. Current diagnosis for BPD involves identifying a minimum five of nine possible criteria in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) [2]. One criterion is labelled chronic feelings of emptiness. This symptom remains in the alternative diagnostic model for BPD in DSM-5, where it is associated with identity disturbance.

Feelings of chronic emptiness have always been included in the conceptualisation and diagnosis of BPD [6]. In an early seminal paper, Deutsch [7] described a group of people who experience inner emptiness in their emotional life, a feeling where 'all inner experience is completely excluded. It is like the performance of an actor who is technically well trained but who lacks the necessary spark to make his impersonations true to life' [7, p. 328]. This experience was described as resulting in a 'chameleonlike quality' in interpersonal relationships, where pretence and adaptability masks the emptiness underneath [8]. Chronic feelings of emptiness has also been described as akin to 'deadness', 'nothingness', a 'void', feeling 'swallowed'[9], a sense of 'vagueness' [10], a feeling of internal absence [11], 'woodenness' [12], a 'hole' or 'vacuum', 'aloneness' [1], 'isolation' [13], 'numbness' and 'alienation'[14].

There are several theoretical views of chronic emptiness in BPD. According to early theoretical literature, people who experience chronic feelings of emptiness lack the capacity to experience themselves, others, or the world fully and there is 'a profound lack of emotional depth or sense of not being in the experience' [9, p. 34, 11]. Kernberg [8, 15] suggested that emptiness results from a loss of, or disturbance in, the relationship of self with object relations, with a lack of integrated representations leading to an absence of 'self-feeling' [16, 17]. Other analysts similarly proposed that emptiness results from deficits in maintaining stable object relations [18–20] and an inability to develop soothing and holding introjects–meaning difficulties with internalising positive and nurturing experiences [21, 22], perhaps resulting from the absence of a 'good enough' caregiver [23, 24]. Overall, these analysts attributed emptiness to the absence of a good maternal presence, resulting in unstable object- and self-representations and a feeling of inner emptiness. This theory was supported in part by an early study by Grinker and colleagues [25] which found inadequate awareness of self was sufficient for predicting BPD group membership, including a deficiency in recognising internal thoughts and affects as belonging to oneself and an associated feeling of chronic emptiness. Chronic feelings of emptiness were proposed to drive 'the basis of his attempt to appropriate from others, or of his feeling of danger of being engulfed by others. Some try to borrow from others, become satellitic to

another, merge with a host or lay skin to skin. Others attempt to fill up with knowledge or experience' [25, p. 16]. These early concepts are still utilised within contemporary psychodynamic approaches to personality assessment, diagnosis and treatment, with a focus on emptiness reflecting disturbances of identity [26, 27].

Biosocial models of BPD suggest that chronic feelings of emptiness are reflective of a dysregulation of identity [28]. Emptiness is conceptualised as an attempt (whether conscious or not) to inhibit intense emotional experiences, which leads to a lack of development in personal identity [29]. It is hypothesised chronic emptiness results from insecure attachments with caregivers [30], and transactional models propose emptiness is the experience of an individual not knowing their own personal experience, resulting from inconsistent validation and invalidation responses by caregivers [31]. This understanding is similar to attachment and mentalisation perspectives, where feelings of emptiness reflect a failure in mentalisation. Specifically, emptiness is a consequence of the absence of the psychological self–the secondary representation of self which allows an understanding of one's own internal world, and the world seen through the eyes of others [32].

Despite the numerous theories that mention emptiness, there remains no unifying theory of chronic emptiness in BPD, and it is not typically accounted for in aetiological models of BPD [33]. Further, the symptom has rarely been the focus of empirical research [1]. Substantial empirical literature exists for other symptoms of BPD (e.g. affective instability [34] and impulsivity [35]), but until recently there has been a limited focus on chronic feelings of emptiness. There appears to be confusion within the field regarding what chronic emptiness actually *is*, with vague boundaries between constructs like hopelessness, loneliness, or boredom [36] and with research often referring to each term interchangeably.

Despite this lack of clarity within the research, recent studies have shown an increased focus on chronic emptiness, suggesting the experience may be associated with vocational and interpersonal dysfunction [37, 38] and self-harm and suicidal behaviours [39]. Research has also linked chronic emptiness to depressive experiences unique to people with BPD–a possible 'borderline depression' [40].

In order to better understand what chronic emptiness is and the importance of chronic feelings of emptiness to the conceptualisation, course, and outcomes of BPD it is important to first analyse the current literature to provide a baseline for future work. In particular, it is important to identify any research that supports theoretical claims that chronic emptiness is a reflection of impaired relationships with the self and others. It is also important to identify research that reports on whether chronic emptiness represents a single construct or if it encompasses other experiences, such hopelessness, loneliness or depression. In order to achieve this, the current study aimed to systematically review empirical research on chronic emptiness and related terms in populations with features or a diagnosis of BPD. Considering there are currently no detailed reviews, a broad focus was employed that is unrestrictive to interventions and outcomes. A cohesive analysis of the empirical literature will enable an understanding of the current state of the field, and provide directions for future research.

Method

Protocol and registration

A protocol for the current study was registered on the International Prospective Register of Systematic Reviews (PROSPERO, registration number: CRD42018075602). Articles were identified, screened, and chosen for inclusion in accordance with the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) guidelines for reviews [41].

Information sources

Electronic databases searched included PsycINFO, PubMed, Scopus, and Web of Science. The last search date was February 2019. Additional records known to authors which were not captured in original database searching were added.

Search

The search strategy for online studies remained the same across databases and included (Empt* or isolat* or vacuum or dead or deadness or nothing* or void or swallowed or bored* or numb* or alien* or wooden* or hole or alone* or vague* or hopeless* or lonel*) AND (borderline personality disorder or BPD or emotionally unstable personality disorder). Truncation was used in search terms to capture variations in terminology.

Eligibility and inclusion criteria

Studies were eligible for analysis if they met the following criteria: a) Research focusing on individuals with features or diagnosis of BPD and community populations endorsing features of BPD that b) contain novel empirical data (quantitative, qualitative, or mixed methods, excluding systematic reviews and case studies), c) are peer-reviewed, d) discuss findings related to chronic emptiness or a related construct in their results or discussion, and e) meet quality assessment.

Due to the limited nature of the research on chronic feelings of emptiness, eligible studies were not restricted by intervention type, comparison, or outcomes. Further, there was no time limit set on searches in order to capture early data regarding emptiness. Language was not restricted as translating software was used.

Study selection. Articles which did not meet initial screening criteria were excluded. Articles were then screened by title and abstract by two reviewers for inclusion in full-text review. Disagreement on inclusion of articles for screening was resolved by discussion and advice with another reviewer. Following full text screening, artides were further excluded if they a) were unable to be translated and authors could not be contacted, and b) contained keywords which were discussed only in the context of Schema therapy and Schema modes (e.g. lonely child mode).

Risk of bias in individual studies. Following the selection of articles for full-text review, quality was assessed using the Mixed Methods Appraisal Tool (MMAT)–Version 2011. The MMAT has good interrater reliability and content has been validated [42–44]. Although the MMAT is yet to be validated in clinical samples, the absence of a gold standard quality assessment for appraisal of observational studies necessitates the use of modified assessments [45]. Two screening questions were asked for all study types prior to further quality assessment; 'are there clear research questions or objectives?' and 'do the collected data address the research questions?' The observational descriptive quantitative component of the MMAT was used to examine quantitative studies. This encompasses several factors including appropriate sampling methods, justification of methods and acceptable response rates [43]. The qualitative component of the MMAT was also used, which similarly included factors of appropriate sampling and justification of methods, in addition to understanding the context of information and influence of researchers' on results.

Studies which satisfied all other eligibility criteria were given an overall rating of quality. Quality scores for quantitative studies ranged from a possible zero to eight, while qualitative study scores ranged from zero to six. Studies with a score of four or higher (quantitative studies) and three or higher (qualitative studies) were deemed appropriate for detailed data extraction and synthesis. Two authors independently assessed study quality, and consensus was

reached by discussion. To reduce possible bias towards the previous study published by the authors' which was included in the review, an independent researcher who had not been involved in the previous study assessed all studies for quality.

Summary measures and synthesis

Following the quality assessment one researcher extracted data from included studies which was independently checked by a second researcher. Information extracted from articles included aims of the study, study design, participant details, measures, and key results. Quantitative and qualitative studies were summarised in tabular form. One researcher thematically analysed the data to identify key themes in relation to each key word.

Results

Study selection

A total of 7435 articles were found by electronic database searching (n = 7431) and additional records known to authors (n = 4). Following the removal of duplicates (n = 2786) and exclusion based on article type (n = 404), articles were excluded by title relevance (n = 2597). 1648 article abstracts were screened, and articles were excluded if they had no novel empirical data or were a case study (n = 355), did not have a focus on BPD or Emotionally Unstable Personality Disorder (n = 264), or if there was no mention of emptiness or related keyword in abstract (n = 911). 118 full-text articles were assessed for eligibility. Articles were excluded if they had no novel empirical data (n = 8), no mention of emptiness or related keyword in the results or discussion (n = 3), no focus on BPD (n = 2), if keywords were only used in the context of Schema therapy (n = 3), and if the article was not translatable using software and authors could not be contacted (n = 1). The study selection process is depicted in Fig 1.

Following application of MMAT quality assessment, two studies did not meet quality criteria. One study did not meet screening questions and was excluded from further assessment. The remaining studies (n = 100) were evaluated on the additional four dimensions of the MMAT quantitative descriptive or qualitative tool. One study scored a one and was excluded from further analysis due to low quality. There was a 97.98% agreement between raters for quality assessment; two articles were discussed with a third rater to achieve consensus. All remaining studies (n = 99) scored at least half of the quality criteria and are included in the table of study characteristics, but articles with lower scores should be interpreted with caution (S1 Table).

Study characteristics

Ninety-nine studies were included in data extraction representing a total of 98,340 participants, with a range of seven to 36,309 participants across individual studies. Eighty-three studies reported on average age of their sample, and the overall average age across studies was 32.1 (*SD* = 11.0). Eighty-seven studies reported on gender ratio within their studies. Participants were predominantly female, with a mean of 77.6% (*SD* = 16.9, range = 36.7–100%). Of the 34 studies reporting participant cultural background, Caucasian participants accounted for an average of 77.2%. Further details of study characteristics are included in Table 1. Studies utilised a wide range of measures to quantify the experience of chronic emptiness and related terms (see Table 2). Table 3 presents a detailed overview of study characteristics.

Study focus. Thirty studies chosen for inclusion focused on chronic feelings of emptiness. A further 14 studies focused on chronic feelings of emptiness in addition to at least one other symptom (i.e. chronic feelings of emptiness and hopelessness, chronic feelings of emptiness and loneliness). Thirty-one studies reported on feelings of hopelessness, eight studies reported

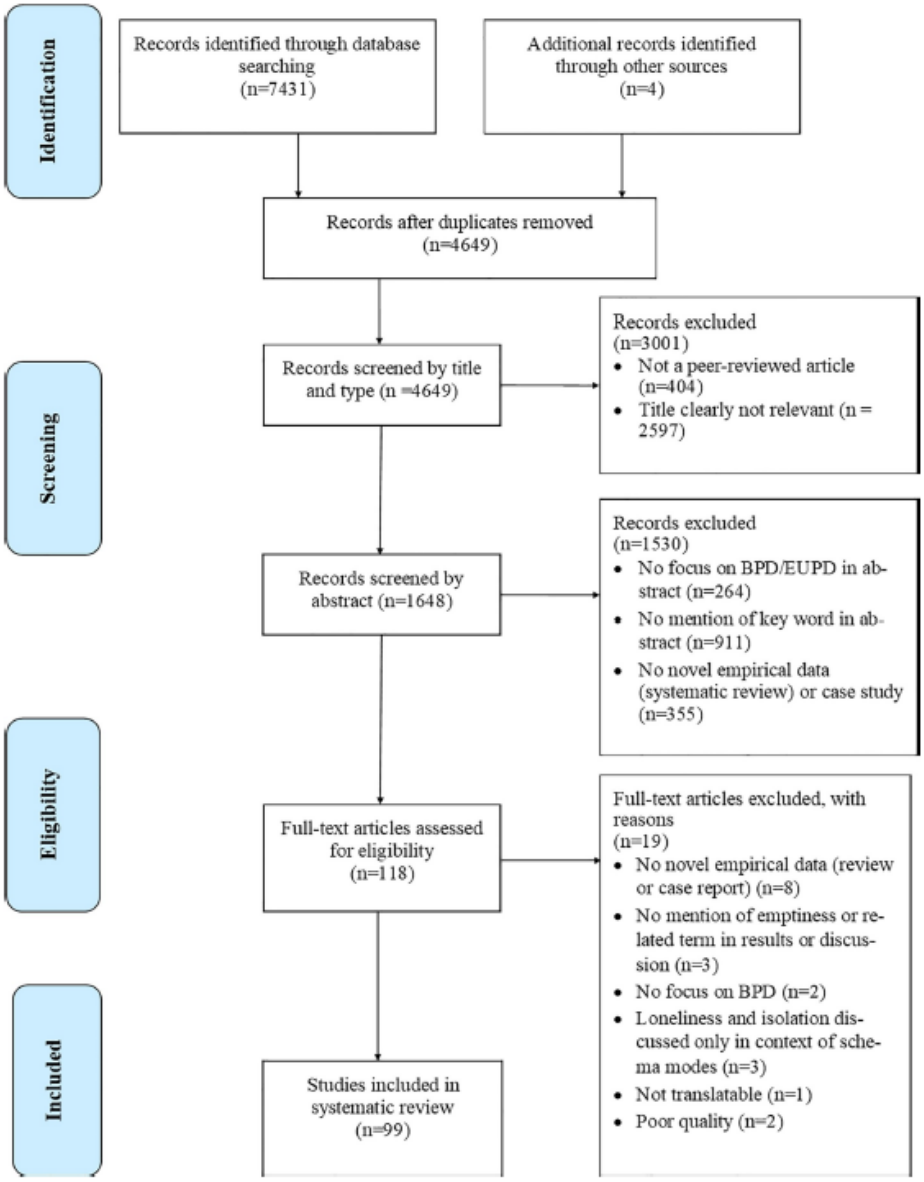


Fig 1. PRISMA flowchart for selection of studies included in systematic review.

https://doi.org/10.1371/journal.pone.0233970.g001

Table 1. Details of included studies.

		Frequency (N)	%
Total studies		99	100
Study design	Quantitative longitudinal	23	23.2
	Quantitative cross sectional	73	73.7
	Qualitative	2	2.0
	Mixed methods	1	1.0
Measure	Measure specific to BPD population [a]	48	48.5
	General measure used	39	39.4
	Both specific and general measure used	11	11.1
	Unspecified measure	1	1.0
Gender	Both female and male	73	73.7
	Female only	18	18.2
	Male only	1	1.0
	Not specified	7	7.1
Sample type	Outpatients	35	35.4
	Inpatients	29	29.3
	Mixed sample	15	15.2
	Non-clinical sample	10	10.1
	Not specified	10	10.1
Study location	Argentina	1	1.0
	Australia	5	5.1
	Canada	4	4.0
	Denmark	2	2.0
	England	2	2.0
	Finland	1	1.0
	France	3	3.0
	Germany	9	9.1
	Ireland	1	1.0
	Israel	1	1.0
	Italy	2	2.0
	Japan	1	1.0
	Mexico	1	1.0
	Netherlands	1	1.0
	Norway	2	2.0
	South Africa	1	1.0
	Spain	5	5.1
	Switzerland	6	6.1
	United States of America	51	52.5

[a]–Specific measures include developed qualitative questions

https://doi.org/10.1371/journal.pone.0233970.t001

on loneliness, one study reported on loneliness and aloneness, six studies focused on aloneness, four studies focused on isolation, three studies reported on alienation, and two studies focused on boredom.

Key findings from studies focusing on chronic emptiness

The findings from 99 included studies were categorised according to construct and key findings were extracted. The forty-four studies which focused on chronic feelings of emptiness

Table 2. Measures used in selected studies to quantify emptiness or related term and frequency of use.

Measure name	Measure acronym	Frequency (N)
Adult Attachment Projective	AAP	2
Aloneness and Evocative Memory Scale	AEMS	1
Alcohol Use Disorder and Associated Disabilities Interview Schedule-IV	AUDADIS-IV	2
Background Information Schedule	BIS	1
Beck Hopelessness Scale	BHS	26
Bell Object Relations and Reality Testing Inventory	BORRTI	1
Borderline Evaluation of Severity Over Time	BEST	1
Borderline Symptom List	BSL/BSL-23	4
Clinical Global Impression Modified	CGI-M	1
Clinical interview	-	1
Combined Criteria Instrument	CCI	1
Developed measure	-	7
Diagnostic Interview for Borderlines (/Revised)	DIB/DIB-R	18
Diagnostic Interview for Personality Disorders Revised	DIPD-R	2
Experience of Time Alone Scale	ETAS	1
Hurvich Experience Inventory Revised	HEI-R	1
Hopkins Symptom Checklist 90	HSC	2
International Personality Disorders Examination	IPDE	1
McLean Screening Instrument for BPD	MSI-BPD	2
Millon Clinical Multiaxial Inventory	MCMI	1
Multidimensional Personality Questionnaire (/Brief)	MPQ/MPQ-BF	2
Orbach and Mukilincer Mental Pain Scale	OMPP	1
Personality Assessment Interview–Borderline scale	PAI-BOR	1
Personality Diagnostic Questionnaire Revised	PDQ-R	2
Personality Disorder Examination	PDE	2
Personality Inventory for DSM-5	PID-5	1
Rorschach test	-	1
Structured Clinical Interview for DSM-IV Axis II	SCID-II	14
Structured Interview for DSM-IV Personality	SIDP-IV	5
Structured Psychopathological Interview and Rating of the Social Consequences of Psychological Disturbances for Epidemiology	SPIKE	1
Subjective Emptiness Scale	SES	1
Thematic Analysis	-	2
University of California Los Angeles Loneliness Scale	UCLA Loneliness Scale	5
Unspecified measure	-	1
Young Schema Questionnaire	YSQ	1
Zanarini Rating Scale for Borderline Personality Disorder	ZAN-BPD	1

https://doi.org/10.1371/journal.pone.0233970.t002

alone or in conjunction with another key word were analysed, then key findings for similar constructs including hopelessness and loneliness were analysed separately.

Difficulties in defining chronic emptiness. A predominant finding of this review was the difficulty in understanding and defining the nature of chronic emptiness, and inconsistent findings regarding its relation to other symptoms of BPD. Studies investigating symptom clusters in BPD were highly variable in their results, theorising chronic emptiness was a component of: psychological process [50], affective instability [52], painful affect and defenses [63], disturbed relatedness [117], internally oriented criteria [124], and self-other instability [128].

Table 3. Characteristics of included studies.

Source	Title	Aim	Participants	Measures	Key results regarding chronic emptiness or related term	Measurement of chronic emptiness or related term
Abela et al., 2003 [46]	Cognitive vulnerability to depression in individuals with borderline personality disorder	Compare cognitive vulnerability to depression in individuals with comorbid BPD and MDD, individuals with MDD only and individuals with neither BPD or MDD.	Parents living in community with history of depressive episode, n = 141 (nNoBPD +NoMDD = 36, nMDD = 89, nBPD+ MDD = 16). Median age = 41, 90% female, 84.3% Caucasian.	SCID-I, SCID-II, BDI, BHS, EASQ, DAS, SEQ, RSQ	Individuals with BPD and MDD experienced significantly higher scores of hopelessness compared to MDD only and HC. Individuals with comorbid BPD and MDD displayed significantly greater cognitive vulnerability to depression as measured by hopelessness, low self-esteem, dysfunctional attitudes, and rumination scales.	BHS
Amianto et al., 2011 [47]	Supervised team management, with or without structured psychotherapy, in heavy users of a mental health service with borderline personality disorder: A two-year follow-up preliminary randomised study	Compare the efficacy of Supervised Team Management (STM) and STM plus Sequential Brief Adlerian Psychodynamic Psychotherapy (SB-APP) in BPD treatment.	Individuals engaged in outpatient services in Mental Health Centre in Italy with diagnosis of BPD, n = 35. Mean age = 39.5, 51.4% male. Inclusion criteria: Age 20–50, heavy use of mental health service in prior year, no severe comorbid Axis I disorder, no intellectual, developmental, or cognitive impairment which would impede understanding, no current substance use, no previous psychotherapy intervention.	SCID-I, SCID-II, TCI, SCL-90, STAXI, CGI, GAF, CGI-M, WAI-S	STM and SB-APP was more effective than STM at reducing core psychopathological characteristics including chronic feelings of emptiness. SB-APP may help address emptiness by promoting mentalisation skills, decreasing splitting defenses and increasing tolerance for ambivalence.	CGI-M
Andreasson et al., 2016 [48]	Effectiveness of dialectical behaviour therapy versus collaborative assessment and management of suicidality treatment for reduction of self-harm in adults with borderline personality traits and disorder—a randomized observer-blinded clinical trial	Compare effectiveness of DBT to Collaborative Assessment and Management of Suicidality (CAMS) treatment in reducing self-harm for individuals with BPD symptomology.	Individuals meeting two or more BPD criteria with a recent suicide attempt, n = 108 (nDBT = 57, nCAMS = 51). Mean age = 31.7, 74% female. Inclusion criteria: Age 18–65, no current severe depression, BD, psychosis, anorexia nervosa, substance use, no intellectual, developmental, or cognitive impairment which would impede understanding.	MINI, SCID-II, HDRS-17, presence of self-harm, ZAN-BPD, BDI-II, BSI, BHS, RSE	No significant differences were found between SBT and CAMS for levels of hopelessness in individuals with two or more BPD criteria with a recent suicide attempt.	BHS
Bach, & Sellbom, 2016 [49]	Continuity between DSM-5 Categorical Criteria and Traits Criteria for Borderline Personality Disorder	Examine associations between DSM-5 dichotomous criteria and DSM-5 Section III traits for BPD.	Outpatients from Danish psychiatric service meeting criteria for PD diagnosis, n = 101. Mean age = 29, 68% female.	SCID-II, PID-5	The symptom chronic feelings of emptiness was not significantly correlated with any Section III traits, and only weakly associated with Depressivity. The lack of associations may indicate chronic feelings of emptiness are captured by the personality functioning criteria of Section III conceptualisation.	SCID-II, PID-5

(*Continued*)

Table 3. (Continued)

Source	Title	Aim	Participants	Measures	Key results regarding chronic emptiness or related term	Measurement of chronic emptiness or related term
Becker et al., 2006 [50]	Exploratory factors analysis of borderline personality disorder criteria in hospitalised adolescents	Explore factor structure of BPD in hospitalised adolescents meeting criteria for DSM-III-R BPD.	Inpatients at the Adolescent Inpatient Unit at Yale Psychiatric Institute meeting criteria for BPD, n = 123. Mean age = 15.9, 54% male.	SADS, PDE	A four factor solution accounted for 67% of variance. Factor 1 included suicidal threats or gestures and emptiness or boredom. This factor may represent two aspects of dysregulation: the psychological process (emptiness) and maladaptive attempts to relieve tension of this process (suicidal behaviours).	PDE
Bell et al., 1988 [51]	Do object relations deficits distinguish BPD from other diagnostic groups?	Use the Bell Object Relations (OR) Inventory to determine if there is a pattern of OR deficits for individuals with BPD, cross validate this OR profile with a second sample of BPD and compare BPD subjects with other diagnostic samples on OR.	Sample 1: Inpatients at Veterans Administration Medical Centre meeting criteria for BPD diagnosis, n = 44. Mean age = 37.7, 93% male. Sample 2 (cross validation sample): Outpatients meeting criteria for BPD but not any Axis 1 diagnoses, n = 24. Mean age = 30.8, 92% female. Sample 3 (other diagnostic group): Inpatients meeting criteria for schizophrenia, major affective disorder, or schizo-affective disorders but no diagnosis of BPD, n = 82. Mean age = 33, 89% male.	SADS, RDC, New Haven Schizophrenia Index, International Pilot Study for Schizophrenia criteria, Feighner criteria, BORRTI	Individuals with BPD (either inpatient or outpatient) were most identifiable by elevated scores on the Alienation subscale of Bell OR Inventory. Based on only Alienation scores, individuals with BPD could be distinguished from other diagnostic groups with 77–82% predictive accuracy. The internal experience of alienation, lack of intimacy, and loss of trust in interpersonal relations is a common feature of BPD.	BORRTI
Benazzi, 2006 [52]	Borderline personality — bipolar spectrum relationship	Identify which criteria of BPD are related to Bipolar II.	Outpatients with diagnoses of Bipolar II or MDD (in remission) who were further assessed for BPD traits, n = 209. nBD-II = 138, mean age = 39, 77% female. nMDD = 71, mean age = 39, 61% female.	SCID-CV, SCID-II	BPD traits were more common in individuals diagnosed with Bipolar II. Factor analysis of BPD traits found two factors. The first 'affective instability' factor included unstable mood, identity and interpersonal relationships, chronic emptiness, and feelings of anger.	SCID-II
Berk et al., 2007 [53]	Characteristics of recent suicide attempters with and without borderline personality disorder	Identify pathology associated with suicide attempts for individuals with BPD and compare to those with a recent suicide attempt without a BPD diagnosis.	Individuals presenting to hospital due to suicide attempt, n = 180 (nBPD = 65, nNoBPD = 115). Mean age = 34, 57% female, 63% African American. Inclusion criteria: Age 16+, no intellectual, developmental, or cognitive impairment which would impede understanding.	SCID-I, SCID-II, GAF, HAM-D, SSI, SIS, Lethality Scale, BDI-II, BHS, SPSI-R, Psychiatric History Form	Suicide attempters with BPD had higher severity of hopelessness compared to those without BPD.	BHS

(*Continued*)

Table 3. (Continued)

Source	Title	Aim	Participants	Measures	Key results regarding chronic emptiness or related term	Measurement of chronic emptiness or related term
Bernheim et al., 2018 [54]	Change of attachment characteristics during dialectic behavioural therapy for borderline patients	Determine if attachment characteristics for individuals with BPD change following DBT.	Individuals with BPD and healthy controls, n = 52 (nBPD = 26, nHC = 26). Inclusion criteria: No intellectual, developmental or cognitive impairment which would impede understanding, no psychosis.	AAP, ASQ, SCID-II, BPI, MWT-B	Individuals with BPD demonstrated more traumatic-dysregulating markers in AAP narratives in response to monadic pictures which may induce feelings of loneliness.	AAP
Bhar et al., 2008 [55]	Dysfunctional beliefs and psychopathology in borderline personality disorder	Examine factor structure of PBQ-BPD in individuals with BPD, understand how factors of PBQ-BPD relate to psychopathology.	Outpatients, inpatients and research participants with diagnosis of BPD, n = 184. Mean age = 33.1, 75.4% female, 55.2% Caucasian. Inclusion criteria: Age 18+, no psychosis.	PBQ-BPD, BDI, SSI, BHS, SCID-I, SCID-II, DIPD-IV	The 'interpersonal distrust' factor of PBQ-BPD correlated with hopelessness, depression, and suicide ideation. The 'dependency' factor was correlated with depression and hopelessness.	BHS
Black et al., 2018 [56]	STEPPS treatment programme for borderline personality disorder: Which scale items improve? An item-level analysis	Determine which items of BEST and ZAN-BPD improve during STEPPS treatment.	Participants in an RCT evaluating STEPPS treatment with diagnosis of BPD and participants in the Iowa correctional system completing STEPPS treatment, n = 193. 81.9% female. No intellectual, developmental, or cognitive impairment which would impede understanding, no psychosis, no substance use disorder.	SCID-I, SCID-II, BEST, ZAN-BPD	Chronic feelings of emptiness significantly improved following STEPPS treatment.	ZAN-BPD, BEST
Bohus et al., 2007 [57]	Psychometric properties of the borderline symptom list (BSL)	Summarise validity, reliability and sensitivity to change for BSL.	Participants from six different samples; inpatient and outpatient females with BPD, male patients with BPD, HCs, participants with other mental disorders, female patients with BPD in inpatient DBT treatment, n = 930. Minimum 53.7% female, 30.4% unreported gender.	BSL, IPDE, MINI, BDI, HAM-D, STAI, STAXI, DES, SCL-90-R	Factor analysis of BSL showed a seven factor solution including a subscale of loneliness.	BSL
Bohus et al., 2001 [58]	Development of the Borderline Symptom List	Develop a self-assessment scale to quantify specific experiences of people with BPD.	Participants with a diagnosis of BPD, n = 308. Mean age = 30.3, 100% women.	99 item early version of BSL	The fifth factor of the symptom list included experiences of social isolation. Items in this factor included 'I believed that nobody understood me', 'I felt isolated from others', 'I felt abandoned by others'.	BSL
Bornovalova et al., 2006 [59]	Temperamental and environmental risk factors for borderline personality disorder among inner-city substance users in residential treatment	Understand temperamental and environmental factors uniquely associated with BPD.	Inpatients in drug and alcohol abuse treatment centre, n = 93. Mean age = 41.5, 56% male, 92.5% African American.	Demographics, MPQ-BF, CTQ-SF, SCID-II.	Results indicate that diagnosis of BPD was associated with several interpersonal factors of temperament including higher rates of alienation.	MPQ-BF

(*Continued*)

Table 3. (Continued)

Source	Title	Aim	Participants	Measures	Key results regarding chronic emptiness or related term	Measurement of chronic emptiness or related term
Brickman et al., 2014 [39]	The relationships between non-suicidal self-injury and borderline personality disorder symptoms in a college sample	Understand relationship between BPD factors and symptoms and non-suicidal self-injury in a college sample.	Undergraduate students with and without history of NSSI, n = 724. Mean age = 21.2, 61.2% female, 59.3% Caucasian.	FAFSI, MSI-BPD	Endorsement of disturbed relatedness (chronic emptiness, identity disturbance) was independently associated with history of NSSI. Feelings of chronic emptiness may precede NSSI and may act as motivation to engage in NSSI behaviours in young adults.	MSI-BPD
Brown et al., 2004 [60]	An open clinical trial of cognitive therapy for borderline personality disorder	Identify if cognitive therapy alters risk factors for suicide in clients with BPD.	Individuals reporting suicide ideation or self-harm behaviours in past two months meeting criteria for PD, n = 32. Mean age = 29, 88% female, 72% Caucasian. Inclusion criteria: No psychosis, no intellectual, developmental, or cognitive impairment which would impede understanding.	SCID-I, SCID-II, SSI, HRSD, BDI-II, BHS, PHI, PBQ	Individuals with BPD who receive cognitive therapy experienced a decrease in levels of hopelessness at the end of treatment which was maintained at 18 months follow-up.	BHS
Buchheim et al., 2008 [61]	Neural correlates of attachment trauma in borderline personality disorder: A functional magnetic resonance imaging study	Analyse neural activation patterns of attachment trauma for individuals with BPD, investigating response to stories associated with loneliness and abandonment in the AAP.	Inpatients with diagnosis of BPD and control participants, n = 28 (nBPD = 11, nControl = 17). Mean age = 28.1, 100% female. Inclusion criteria: No serious medical or neurological illnesses (BP, PTSD, DD), no current depressive episode, substance dependence, left-handedness, metal in body, or language difficulties.	SCID-I, SCID-II, DES, BIS, AAP fMRI	Neural differences were found between groups for dyadic pictures, with BPD group showing higher activation of right superior temporal sulcus and lower activation of right parahippocampal gyrus compared to controls. This provides support for the existence of a neural mechanism related to intolerance of aloneness in BPD.	AAP
Chabrol et al., 2001 [62]	Symptomatology of DSM-IV borderline personality disorder in a non-clinical sample of adolescents: Study of 35 borderline cases	Examine symptoms of BPD in a non-clinical adolescent population.	Adolescents willing to complete a personality disorder interview, n = 107. Mean age = 16.7, 68.2% female.	DIB-R, MINI	Chronic feelings of emptiness were experienced by 57.1% of the sample.	DIB-R
Chabrol et al., 2002 [63]	Factor analyses of the DIB-R in adolescents	Examine factor structure of DIB-R in adolescent population.	High school students, n = 118. Mean age = 16.7, 66.9% female.	DIB-R	The first factor of DIB-R, explaining 21% of variance, included painful affect and defenses. Items included loneliness/emptiness, helplessness/hopelessness, depression, anxiety, odd thinking/unusual perceptive experiences, quasi-psychotic experiences.	DIB-R

(*Continued*)

Table 3. (Continued)

Source	Title	Aim	Participants	Measures	Key results regarding chronic emptiness or related term	Measurement of chronic emptiness or related term
Chapman et al., 2005 [64]	Factors associated with suicide attempts in female inmates: The hegemony of hopelessness	Examine associations between risk and protective factors with suicide attempts in female inmates.	Female inmates, n = 105. Mean age = 33.9, 100% female, 71.4% Caucasian. No current psychosis or serious reading difficulties.	Demographics, LPC-2, SCID-II, TAAD, BDI-II, BHS, CTQ, RFL, COPE	Hopelessness may mediate the relationship between risk factors (including BPD) and suicide attempts.	BHS
Choi-Kain et al., 2010 [65]	A longitudinal study of the 10-year course of interpersonal features in borderline personality disorder	Determine time to remission of interpersonal BPD symptoms over ten years of follow-up.	Inpatients at McLean Hospital meeting criteria for BPD or another PD, n = 309 (nBPD = 249, nOtherPD = 60). Mean age = 27, 77.1% female, 87% Caucasian. No historical or current schizophrenia, schizoaffective or BP, no intellectual, developmental, or cognitive impairment which would impede understanding (IQ < 70), no organic disorders which could cause psychiatric symptoms, no language difficulties.	SCID-I, DIB-R, DIPD-R	Most interpersonal symptoms of BPD (including intolerance of aloneness) remit significantly over time. The symptom 'affective consequences when alone' declined less substantially over ten years than most other symptoms and was the last interpersonal feature of BPD to remit.	DIB-R, DIPD-R
Conte et al., 1980 [66]	A self-report borderline scale: Discriminative validity and preliminary norms	Develop a self-report measure of BPD and report on psychometric properties.	Participants from four samples, n = 141. HC (n = 50, mean age = 33), outpatients with MDD (n = 36, mean age = 35), outpatients with BPD (n = 35, mean age = 33), and inpatients with Schizophrenia (n = 20, mean age = 32).	BSI	Items related to feelings of chronic emptiness discriminated the BPD group from all other groups.	BSI
Cottraux et al., 2009 [67]	Cognitive therapy versus Rogerian supportive therapy in borderline personality disorder	Compare cognitive therapy to Rogerian supportive therapy over one year for individuals with BPD.	Outpatients with diagnosis of BPD, n = 65. Mean age = 33.5, 76.9% female. Inclusion criteria: Age 18–60, no psychosis, no substance use disorder, no antisocial behaviours.	MINI, DIB-R, CGI, HDRS, BDI, BHS, BAI, YSQ-II, IVE, SHBCL, TRES, SAS	Hopelessness improved more in cognitive therapy compared to Rogerian supportive therapy.	BHS
Ellison et al., 2016 [37]	The clinical significance of single features of borderline personality disorder: Anger, affective instability, impulsivity, and chronic emptiness in psychiatric outpatients	Understand which DSM-5 BPD criteria are associated with psychosocial morbidity in outpatients.	Individuals presenting to Rhode Island Hospital for outpatient psychiatric care reporting either no BPD symptoms, affective instability, emptiness, or impulsivity symptoms, n = 1870 (nNoBPD = 1387, nImpulsivity = 114, nAffectiveInstability = 86, nEmptiness = 170, nAngerOnly = 113). Mean age = 38, 60% female, 92% Caucasian. Inclusion criteria: Age 18+, no intellectual, developmental or cognitive impairment which would impede understanding, no difficulty communicating in English.	SIDP-IV, SCID-I, GAF, items from SADS (current suicidality, current social function, prior psychiatric hospitalisations, history of suicide attempts)	Participants experiencing one BPD symptom had higher rates of comorbid mood disorder and lower functioning compared to participants without BPD symptoms. Impulsivity and emptiness groups had poorer work function and emptiness and anger groups had lower social function than no BPD group. Emptiness group had poorer psychosocial function compared to group without BPD criteria on all measures.	SIDP-IV

(*Continued*)

Table 3. (Continued)

Source	Title	Aim	Participants	Measures	Key results regarding chronic emptiness or related term	Measurement of chronic emptiness or related term
Espinosa et al., 2009 [68]	Risk and suicide lethality in patients with borderline personality disorder in a psychiatric hospital	Assess suicidal risk and lethality in individuals with BPD.	Individuals with BPD who presented to hospital with suicidal ideation or following suicide attempt, n = 15. Mean age = 29.5, 94% female.	SCID-II, SIS, BHS, DSQ, RRS	Almost half of the sample of individuals with BPD endorsed severe hopelessness after presenting to hospital for suicide attempt or ideation.	BHS
Fertuck et al., 2016 [69]	The specificity of mental pain in borderline personality disorder compared to depressive disorders and healthy controls	Clarify the differences in mental pain between a BPD group, a depressed group, and healthy controls. Identify subtypes of mental pain common to each group.	Individuals involved in ongoing hospital clinical research meeting diagnosis of BPD or DD or recruited through community sampling, n = 110 (nBPD = 57, nDD = 22, nHC = 31). Mean age = 31, 75% female, 44% Caucasian. Inclusion criteria: Age 18–55, BPD and DD groups: no history of psychotic or neurological disorder, no other medical or psychological condition. HC group: no current or past psychological disorder.	SCID-I, SCID-II, OMPP, BDI, HAM-D	BPD group had significantly higher depression and hopelessness, BPD and DD groups had significantly higher ratings of emptiness compared to HC.	SCID II, OMPP
Flynn et al., 2017 [70]	Standard 12 month dialectical behaviour therapy for adults with borderline personality disorder in a public community mental health setting	Evaluate the use of DBT for BPD in community mental health and determine outcomes following DBT.	Outpatients with BPD seeking community mental health treatment, n = 71. Mean age = 40, 85.9% female.	BSL-23, BAI, BHS, BSS, BDI-II, WHOQOL-BREF	DBT was associated with significant reduction in hopelessness.	BHS
Fritsch et al., 2000 [71]	Personality characteristics of adolescent suicide attempters	Examine personality disorder symptoms and their relationship to hopelessness in adolescents with a suicide attempt.	Inpatient adolescents who had attempted suicide, n = 137. Mean age = 15.1, 80.3% female, 76% Caucasian. Inclusion criteria: Age 13–18.	MAPI, DIB-R, HSC	Individuals with higher scores of hopelessness scored higher on Inhibited and Sensitive scales of MAPI and more dysfunctional scores on Affect Regulation scale of DIB-R. Adolescents with high hopelessness had a negative sense of self in most factors of personality function.	HSC
Garcia-Alandete et al., 2014 [72]	Predicting role of the meaning in life on depression, hopelessness, and suicide risk among borderline personality disorder patients	Understand the relationship between meaning in life and depression, hopelessness, and suicidality in a BPD sample.	Individuals from public mental health service meeting criteria for BPD diagnosis, n = 80. Mean age = 32, 93% female, 100% Caucasian. Inclusion criteria: Age 16–60, no psychotic disorder, no intellectual, developmental or cognitive impairment which would impede understanding, no difficulty communicating in Spanish.	PIL-10, BDI-II, BHS, SRS, SCID-II, SCID-I	Meaning in life was a significant negative predictor of depression, hopelessness, and suicide risk.	SCID II

(*Continued*)

Table 3. (Continued)

Source	Title	Aim	Participants	Measures	Key results regarding chronic emptiness or related term	Measurement of chronic emptiness or related term
Glenn & Klonsky, 2013 [73]	Nonsuicidal self-injury disorder: An empirical investigation in adolescent psychiatric patients	Identify if NSSI occurs without BPD and whether it indicates significant impairment beyond a diagnosis of BPD.	Adolescent psychiatric inpatients, n = 198. Mean age = 15.1, 74% female, 64% Caucasian. Inclusion criteria: No psychosis, aggressive or severe suicide-related behaviours, no intellectual, developmental, or cognitive impairment which would impede understanding.	ISAS, SCID-II, MINI-Kid, DERS, UCLA Loneliness Scale.	Adolescents with NSSI disorder had higher rates of loneliness and emotion dysregulation compared to adolescents without NSSI disorder.	UCLA Loneliness scale
Goodman et al., 2013 [74]	Developmental trajectories to male borderline personality disorder	Identify traits and symptoms of male children who develop BPD through parental survey.	Parents of offspring with and without BPD, n = 263. Mean age = 53.9, 93% female. Inclusion criteria: Male gendered offspring.	MSI-BPD	Endorsement of feelings of chronic emptiness had the greatest discrepancies between adult male children with BPD (97%) and adult male children without BPD (8%). By childhood, 41% of males with later BPD experienced emptiness versus 1% of male children without BPD. In adolescence, 59% of males with later BPD endorsed emptiness compared to 4% of males without BPD.	MSI-BPD
Harford et al., 2018 [75]	Borderline personality disorder and violence toward self and others: A national study	Identify BPD criteria which are related to violence towards self and others.	Participants in the NESARC-III study without BPD, with subthreshold BPD and with BPD, n = 36309 (nSubthresholdBPD = 19404, nBPD = 4301). Mean age = 45.5.	NESARC-III suicide attempt and violence questions, AUDADIS-IV	In the total population, symptoms of emptiness, abandonment fear, self-harm, and intense anger all characterised violence towards self (suicide attempts). In the BPD population, the presence of emptiness, self-harm, impulsivity and anger created higher odds for violence towards self and others versus no violence.	AUDADIS-IV
Hauschild et al., 2018 [76]	Behavioural mimicry and loneliness in borderline personality disorder	Determine if behavioural mimicry is altered in BPD compared to healthy controls and if level of mimicry is linked to feelings of loneliness.	Participants with BPD and healthy controls, n = 51 (nBPD = 26, nHC = 25). Mean age = 29.4, 100% female. Inclusion criteria: No left-handedness, no psychosis or BP disorder, no current substance use, history of organic brain disease, brain damage, or neurological illness. No current pregnancy. Healthy controls: No current or lifetime psychiatric diagnoses.	SCID-I, IPDE, BSL, UCLA Loneliness scale, finger-tapping task	Individuals with BPD reported higher levels of loneliness compared to HC. Behavioural mimicry was lowest in individuals with BPD with the highest loneliness scores, suggesting behavioural imitation becomes disengaged or the motivation to engage with others is reduced when people with BPD experience high levels of loneliness.	UCLA Loneliness scale
Hengartner et al., 2014 [77]	Interpersonal functioning deficits in association with DSM-IV personality disorder dimensions	Expand literature on interpersonal function for PD focusing on social functioning.	Swiss individuals representative of general population, n = 511. 55.6% female. Inclusion criteria: Age 20–41.	SCL-27, ADP-IV, SPIKE	BPD was more highly associated with feelings of loneliness compared to other PDs.	SPIKE

(*Continued*)

Table 3. (Continued)

Source	Title	Aim	Participants	Measures	Key results regarding chronic emptiness or related term	Measurement of chronic emptiness or related term
Hoertel et al., 2014 [78]	Examining sex differences in DSM-IV borderline personality disorder symptom expression using Item Response Theory (IRT)	Identify sex differences for reporting of BPD criteria in a general population sample and BPD subsample using item response theory.	USA individuals participating in second wave of NESARC both with and without BPD, n = 34 481 (nBPD subsample = 1030). General sample mean age = 49, 57.9% female, Caucasian 70.7%. BPD sample mean age = 39.8, 62.5% female, Caucasian 71.7%. Inclusion criteria: Age 18+, no participants outside USA or on active military duty.	AUDADIS-IV	Prevalence of chronic feelings of emptiness was significantly higher in females compared to males in both BPD subsample and general population.	AUDADIS-IV
Horesh et al., 2003 [79]	Comparison of the suicidal behaviour of adolescent inpatients with borderline personality disorder and major depression	Determine if there is a difference in emotional motivation between BPD and MDD recent adolescent suicide attempters.	Adolescents admitted to psychiatric unit meeting diagnosis for BPD or MDD and recent or no prior suicide attempts, n = 65 (nBPD = 33, nMDD = 32). 77% female, 100% Jewish heritage from lower-middle SES. Inclusion criteria: Age 13–18, no substance use disorder, no intellectual, developmental or cognitive impairment which would impede understanding, fluency in Hebrew.	CSPS, BDI, BHS, MAI, OAS, ICS, SIS, SADS, DIB-R	For BPD and MDD groups no differences on scores of depression and hopelessness were found. For recent suicide attempters compared to non-suicidal group hopelessness was higher for recently suicidal adolescents. Depression and hopelessness were associated with suicidal behaviour in both BPD and MDD groups.	DIB, BHS
Hulbert & Thomas, 2007 [80]	Public sector group treatment for severe personality disorder: a 12-month follow-up study	Evaluate a treatment program for individuals with BPD with a history of unsuccessful treatments and severe self-harm after 12 months.	Female Anglo-Australian individuals receiving Spectrum Group Treatment who had a diagnosis of PD with a history of unsuccessful mental health treatment and current self-harm, n = 27. Mean age = 34, 100% female. Inclusion criteria: Age 16–64, no acute psychiatric disorders or limited English.	SCID-I, SCID-II, BAI, BDI, BHS, DES, PHI, WCCL, WHOQOL-BREF	Following Spectrum Group Treatment Program, clinically significant gains in reported levels of hopelessness were found.	BHS
James et al., 1995 [81]	Borderline personality disorder: A study in adolescence	Determine presentation and symptom experience of adolescents with BPD compared to psychiatric controls, and identify family predictors.	Adolescents admitted to Oxford Regional Adolescent Unit over two years, n = 48 (nBPD = 24, nControl = 24). Mean age = 14.9, 83% female. Inclusion criteria: No intellectual, developmental or cognitive impairment which would impede understanding.	DIB, chart and case notes, GAS	Adolescents with BPD experienced high levels of boredom and anhedonia which resulted in dysthymia or depressive experiences.	DIB
Javaras et al., 2017 [82]	Functional outcomes in community-based adults with borderline personality disorder	Compare levels of functional impairment between individuals with BPD in clinical treatment programs, individuals with BPD in the community and individuals without BPD.	Probands with and without BPD in general community or clinical treatment programs and their relatives, n = 1127 (nBPD = 225 [clinical = 61, community = 164], nNoBPD = 902), Proband age 18–35, 100% female.	DIPD-IV, DIB-R, BIS	Individuals with BPD in clinical treatment programs were more likely to experience higher levels of social isolation compared to individuals with BPD in the community.	BIS

(*Continued*)

Table 3. (Continued)

Source	Title	Aim	Participants	Measures	Key results regarding chronic emptiness or related term	Measurement of chronic emptiness or related term
Johansen et al., 2004 [83]	An investigation of the prototype validity of the borderline DSM-IV construct	Evaluate prototype validity of construct of BPD in DSM-IV.	Individuals engaged in day treatment programs in Norway with PD, n = 930. Mean age = 34.6, 72% female.	SCID-II, MINI, GAF, SCL-90,	Chronic feelings of emptiness had the lowest correlation with other BPD criteria. It also had the weakest correlation with a BPD diagnosis. Individuals who endorsed the emptiness criterion scored significantly higher on measures of depression. One reason for the low correlations may be the absence of an operational definition of emptiness which indicates a need for a definition of the emptiness criterion.	SCID-II
Kerr et al., 2018 [84]	Depression and substance use disorders in the offspring of depressed parents as a function of the parent's borderline personality disorder symptomatology	Identify risk of MDD and substance use disorder in children of psychiatric outpatients with both MDD and BPD features.	Outpatients at Rhode Island Hospital and their children, n = 2923 (nParents = 912, nOffspring = 2011). Parent group mean age = 45.2, 68.3% female, 83.9% Caucasian. Offspring group mean age = 19.6, 51.5% male.	SCID-I, SIDP-IV	Of BPD criteria chronic feelings of emptiness had the highest endorsement among parents at 30% of the sample. Children of parents with chronic emptiness were at significantly higher risk of developing substance use disorders compared to children of parents without feelings of emptiness. Feelings of emptiness reported by the parent predicted offspring substance use even after controlling for other BPD criteria.	SIDP-IV
Klonsky, 2008 [85]	What is emptiness? Clarifying the 7th criterion for borderline personality disorder	Define meaning and clinical significance of the BPD criterion chronic feelings of emptiness in a sample of college students.	Study 1—College students with five or more historical instances of non-suicidal self-injury, n = 45. Mean age = 19.4, 78% female, 89% Caucasian. Study 2—College students in undergraduate psychology courses, n = 274. Mean age = 19, 53% female, 38% Caucasian, 38% Asian.	Analysis 1: structured interview of affect-states (developed item). Analysis 2: MSI-BPD, YRBS, DASS-21	Study 1: 67% participants reported feeling empty before self-harm behaviours. Correlations were low between affect states of emptiness and boredom. High correlations were found between emptiness and affect states of hopelessness, isolation, and loneliness before and after self-harm. Study 2: Emptiness had a moderate correlation with depression and anxiety. Excluding the suicidal criterion, the criterion of chronic emptiness showed the strongest association with history of suicidal ideation.	MSI-BPD, How often do you feel empty before and after self-injury?

(*Continued*)

Table 3. (Continued)

Source	Title	Aim	Participants	Measures	Key results regarding chronic emptiness or related term	Measurement of chronic emptiness or related term
Koons et al., 2001 [86]	Efficacy of dialectical behaviour therapy in women veterans with borderline personality disorder	Compare DBT treatment to treatment as usual.	Outpatient female veterans meeting diagnostic criteria for BPD in treatment for DBT and TAU, n = 20 (nDBT = 10, nTAU = 10). Mean age = 35, 100% female, 75% Caucasian.	SCID-II, SCID-I, PHI, BSI, BHS, BDI, HAM-D, HARS, SAES, DES	Hopelessness improved significantly more in DBT compared to TAU.	BHS
Lenzenweger et al., 2012 [87]	Exploring the interface of neurobehaviourally linked personality dimensions and personality organization in borderline personality disorder: The Multidimensional Personality Questionnaire and Inventory of Personality Organization	Examine relationships between psychometric indicators of neurobehavioural and psychodynamic processes in BPD.	Individuals with a diagnosis of BPD, n = 92. Mean age = 30.7, 93.5% female.	IPDE, SCID-I, IPO, MPQ	Alienation (negative emotionality) was significantly associated with identity diffusion, primitive defences and reality testing.	MPQ
Leppänen et al., 2016 [88]	Association of parasuicidal behaviour to early maladaptive schemas and schema modes in patients with BPD: The Oulu BPD study	Identify if there are specific early maladaptive schemas or schema modes that are linked with parasuicidal behaviour in BPD.	Individuals with BPD and severe symptoms of previous unsuccessful treatment, n = 60. Mean age = 32.4, 85% female. Inclusion criteria: Age 20+, no psychosis, BP or substance use disorder.	BPDSI-IV, SCID-II, SCID-I, YSQ, YAMI	BPD individuals with parasuicidal behaviour demonstrated higher scores on social isolation/alienation schema compared to BPD individuals without parasuicidal behaviour.	SCID-II, YSQ
Liebke et al., 2017 [89]	Loneliness, social networks, and social functioning in borderline personality disorder	Investigate social isolation and social functioning in relation to loneliness in BPD. Identify if loneliness is a unique factor or if it is accounted for by isolation and impaired functioning.	Individuals with BPD and healthy controls recruited by German Research Foundation, n = 80 (BPD = 40, HC = 40). Mean age = 27, 100% female. BPD group inclusion criteria: No psychosis or BP, current substance use, current pregnancy, history of organic brain disease, brain damage or neurological disorder. HC group inclusion criteria: No psychiatric diagnoses.	BSL-23, ZAN-BPD, IPDE, UCLA Loneliness Scale, SNI, SFS, GAF	BPD group reported higher levels of loneliness compared to HC. Individuals with BPD had smaller and less diverse social networks, and poorer social/interpersonal function which were linked to increased loneliness. After controlling for social-cognitive deficits, the BPD group still had higher loneliness scores, suggesting there are other factors which contribute to feelings of loneliness.	UCLA loneliness scale
Marco et al., 2014 [90]	The meaning in life as mediating variable between depression and hopelessness in patients with borderline personality disorder	Analyse the mediating role of meaning in life between depression and hopelessness for people with BPD.	Participants with BPD from mental health services in Spain, n = 80. Mean age = 32.3, 93% female. Inclusion criteria: Age 16–60, no psychosis, no intellectual, developmental or cognitive impairment which would impede understanding.	SCID-I, SCID-II, BDI-II, PIL, BHS.	Meaning in life mediated the relationship between depression and hopelessness. A greater meaning in life was associated with less hopelessness.	BHS

(*Continued*)

Table 3. (Continued)

Source	Title	Aim	Participants	Measures	Key results regarding chronic emptiness or related term	Measurement of chronic emptiness or related term
Marco et al., 2015 [91]	Meaning in life and non-suicidal self-injury: A follow-up study with participants with borderline personality disorder	Identify if there is a link between low meaning in life and self-harm in participants with BPD at intake time point. Indicate if there is a relationship between low meaning in life and depression, hopelessness and self-harm at follow-up. Understand predictors of self-harm frequency over time.	Individuals engaged in outpatient program who met criteria for BPD, n = 80. Mean age = 32, 94% female, 100% Caucasian. Inclusion criteria: Age 16–60, no psychosis, no intellectual, developmental or cognitive impairment which would impede understanding, fluent in Spanish.	SCID I, SCID II, relevant clinical information inventory (developed items for frequency of self-harm), PIL-10, BHS, BDI-II	Individuals scoring low on meaning in life measures at baseline had higher frequency of self-harm and severe levels of depression and hopelessness compared to those with high meaning in life. Over twelve months meaning in life was negatively correlated with self-harm frequency, hopelessness, and depression.	SCID II, BHS
Marco et al., 2017 [92]	The buffer role of meaning in life in hopelessness in women with borderline personality disorders	Extend on previous findings in a clinical sample to explore the effect of meaning in life on the relationships between previous suicide attempts and hopelessness.	Individuals engaged in outpatient program for BPD, n = 124. Mean age = 31, 100% female. Inclusion criteria: Age 13–56, no psychosis, no intellectual, developmental or cognitive impairment which would impede understanding, fluent in Spanish.	SCID II, PIL-10, BHS, SRS	Meaning in life moderated the relationship between suicide risk factors (previous attempts) and hopelessness. Higher scores of meaning in life reduced the effect of risk factors on hopelessness.	SCID II, BHS
McGlashan, 1987 [93]	Testing DSM-III symptom criteria for schizotypal and borderline personality disorders	Identify which individual symptoms are most discriminating between BPD and SPD.	Individuals in the Chestnut Lodge Follow-Up Study with diagnosis of BPD, SPD or comorbid BPD and SPD, n = 109 (nBPD = 81, nSPD = 10, nBPD +SPD = 18). Inclusion criteria: No psychosis or BP disorder.	DIB	The least discriminating BPD criteria were intolerance of aloneness and anger.	DIB
McQuillan et al., 2005 [94]	Intensive dialectical behaviour therapy for outpatients with borderline personality disorder who are in crisis	Assess modified intensive DBT program on outcomes of hopelessness, depression, and social function.	Outpatients with diagnosis of BPD who identified as being in crisis, n = 127. Mean age = 30.7, 81% female. Inclusion criteria: No psychosis, BP disorder, developmental disorder, substance use disorder or eating disorder.	IPDE, DBI, BHS, SASS	Significant improvements in hopelessness and depression were found after modified intensive DBT treatment.	BHS
Meares et al., 2011 [95]	Is self disturbance the core of borderline personality disorder? An outcome study of borderline personality disorder factors	Determine the core disturbance in BPD which endures over time in relation to Clarkin's three factor model.	Individuals with a BPD diagnosis who received either one year of conversational model (CM) therapy or treatment as usual (TAU), n = 60 (nCM = 29, nTAU = 31). Mean age = 29, 55% female.	WSS, SDS	The constellation of symptoms relating to self (emptiness, identity disturbance, fears of abandonment, interpersonal difficulties) are more chronic than symptoms relating to regulation and may reflect the core problem of BPD. Therapeutic treatment may address these symptoms.	Unspecified

(*Continued*)

Table 3. (Continued)

Source	Title	Aim	Participants	Measures	Key results regarding chronic emptiness or related term	Measurement of chronic emptiness or related term
Miller et al., 2018 [38]	A 1-year follow-up study of capacity to love and work: What components of borderline personality disorder most impair interpersonal and vocational functioning?	Examine symptoms of BPD and their influence on psychosocial function over 12 months in a BPD sample.	Patients presenting to mental health services for treatment of personality disorder, n = 199. Mean age = 32.3, 72.9% female.	GAF, SOFAS, WHODAS 2.0, BPD symptom severity (developed)	Severity of chronic emptiness, identity disturbance, mood dysregulation, impulsivity, and self-harm at intake predicted impaired work function at 12 months follow-up. Mediation modelling found a significant relationship between severity of chronic emptiness (intake) and days out of work (follow-up), which was mediated by severity of impulsivity and frequency of self-harm at intake. Chronic feelings of emptiness may underlie and contribute to behavioural symptoms of impulsivity and self-harm.	BPD symptom severity (MSI question)
Miskewicz et al., 2015 [96]	A contingency-oriented approach to understanding borderline personality disorder: Situational triggers and symptoms	Identify proximal symptoms of BPD which trigger symptomology.	Participants with BPD and general population, n = 255 (nBPD = 77, nHC = 178). Mean age = 44, 67.8% female, 60% Caucasian. Inclusion criteria: Age 18–65, no scores below 24 on MMSE, history of violent crimes, current substance use, current psychosis, or actively suicidal participants.	MINI, SIDP-IV, experience sampling method reports	In the BPD sample, presence and severity of BPD symptomology was contingent on situational triggers. Being alone triggered the experiences of all BPD symptoms except self-harm. Further, as severity of BPD increased, so did the intensity of being alone. Increases in symptoms of emptiness, disturbed self-concept, impulsivity, unstable mood, anger, and dissociative experiences were significantly associated with being alone.	emptiness: I felt hollow inside; I had feelings of emptiness
Morgan et al., 2013 [97]	Differences between older and younger adults with borderline personality disorder on clinical presentation and impairment	Compare younger and older individuals with BPD on mood disorder comorbidity, frequency of symptomology, and functionality.	Individuals engaging in outpatient services meeting BPD criteria, n = 143 (nYounger = 97, nOlder = 46), 76% female. Inclusion criteria: Age 18+, no intellectual, developmental or cognitive impairment which would impede understanding, fluent in English.	SIDP-IV, SCID I, SADS, GAF, self-injury questionnaire	Compared to younger adults with BPD, older adults were more likely to endorse chronic emptiness and poorer social functioning than younger adults. Emptiness may be less likely to change over time for individuals with BPD.	SIDP-IV

(*Continued*)

Table 3. (Continued)

Source	Title	Aim	Participants	Measures	Key results regarding chronic emptiness or related term	Measurement of chronic emptiness or related term
Morton et al., 2012 [98]	Acceptance and commitment therapy group treatment for symptoms of borderline personality disorder: A public sector pilot study	Report on outcomes of pilot study for group ACT intervention for people with BPD compared to TAU, and investigate what mediates improvement in BPD symptoms, anxiety, depression, stress, and hopelessness.	Outpatients meeting four or more criteria for BPD who were engaged with mental health services, n = 41 (nACT = 21, nTAU = 20). Mean age = 34.8, 92.7% female. Inclusion criteria: No current psychosis, no violent behaviours, no intellectual, developmental, or cognitive impairment which would impede understanding, no difficulty understanding English.	SCID-I, SCID-II, BEST, DASS, BHS, AAQ, FFMQ, ACS, DERS	Severity of hopelessness improved more significantly in the ACT group compared to TAU group. Emotion regulation and acceptance skills mediated the relationship between the ACT group treatment and improvements in hopelessness. This suggests developing emotion regulation skills can reduce hopelessness for people with BPD.	BHS
Nicastro et al., 2016 [99]	Psychometric properties of the French borderline symptom list, short form (BSL-23)	Examine psychometric properties of the French version of BSL-23	Outpatients with diagnoses of BPD or ADHD, n = 310 (nBPD = 265, nADHD = 45). BPD sample mean age = 32.2, 90.2% female.	DIGS, SCID-II, BSL-23, DIVA, WURS, BDI-II, BIS, BHS, STAXI	French BSL-23 was highly correlated with severity of hopelessness.	BSL, BHS
Nisenbaum et al., 2010 [100]	Variability and predictors of negative mood intensity in patients with borderline personality disorder and recurrent suicidal behaviour: Multilevel analyses applied to experience sampling methodology	Identify patterns of variability in mood using EMA over 21 days in a sample of BPD individuals and explore if these patterns can be predicted by risk factors associated with suicidal behaviours.	Outpatients with a diagnosis of BPD had engaged in at least two acts of suicidal behaviour with intent to die, with at least one being in previous two years, n = 82. Mean age = 33.5, 82.9% female. Inclusion criteria: Age 18–65	SCID-II, BIS, BDHI, SWLS, BDI-II, BHS, SSI, SBQ, CTQ	Daily mood ratings were dependent on severity of hopelessness throughout day for individuals with BPD.	BHS
Ntshingila et al., 2016 [101]	Experiences of women living with borderline personality disorder	Explore life experiences of women with BPD in South Africa.	Females with BPD in a psychotherapy ward, n = 8. Mean age = 28, 100% female. Inclusion criteria: Age 18–40	Qualitative question —"Tell me your life story"	An emergent theme of life stories among participants was chronic feelings of emptiness in relation to the self. Specifically, the theme chronic emptiness consisted of subthemes of 'distorted self-image' and 'lack of identity'. Participants showed a sense of worthlessness and powerlessness when discussing these themes, and reportedly filled the 'void' of emptiness by engaging in impulsive behaviours.	Themes from qualitative responses

(*Continued*)

Table 3. (Continued)

Source	Title	Aim	Participants	Measures	Key results regarding chronic emptiness or related term	Measurement of chronic emptiness or related term
Nurnberg et al., 1986 [102]	Core criteria for diagnosing borderline patients	Examine diagnostic criteria for individuals with BPD and determine the essential features for diagnosis.	Inpatients with BPD at a university teaching hospital and healthy controls, n = 37 (nBPD = 17, nHC = 20). BPD group age range 17–35, 59% female. Inclusion criteria: No intellectual, developmental or cognitive impairment which would impede understanding. No substance use disorder, no psychosis, no significant medical illness.	DIB	Compared to HCs, the BPD group was characterised by feelings of chronic emptiness, depressive loneliness, and boredom. Chronic emptiness or loneliness was present in 94% of the BPD group compared to 40% of the HC group. Results suggest chronic emptiness/loneliness, impulsivity, unstable relationships, and acting out behaviours are the most common symptoms among the BPD group.	DIB
Nurnberg et al., 1987 [103]	Efficient diagnosis of borderline personality disorder	Identify essential features of BPD and determine how many of DSM-III criteria are necessary for a diagnosis of BPD.	Inpatients with a diagnosis of BPD and healthy controls, n = 37 (nBPD = 17, nHC = 20). 59.5% female. Inclusion criteria: Age 16–45, no current psychosis, no intellectual, developmental, or cognitive impairment which would impede understanding, no substance use disorder, no significant comorbid mental health disorder (BPD group) or psychiatric history (HC group).	DIB, CCI	Chronic feelings of depressive emptiness, loneliness, and boredom, disturbed interpersonal relations, and impulsive behaviours were the most discriminative criteria for BPD participants.	CCI
Nurnberg et al., 1991 [104]	Hierarchy of DSM-III-R criteria efficiency for the diagnosis of borderline personality disorder	Identify discriminating features of BPD and evaluate diagnostic efficiency of DSM-III criteria.	Outpatients with diagnosis of anxiety disorder or other Axis 1 disorder assessed for BPD, n = 110 (nBPD = 22). Mean age = 35, 55% female. Inclusion criteria: No psychosis, major affective disorder, no impairments which would impede understanding, no substance use disorder, must have completed at least one year of psychological treatment.	Clinical interview, SIDP, DIB	Chronic emptiness, boredom and loneliness was the third most discriminating criteria for BPD diagnosis, following interpersonal difficulties and impulsivity.	DIB
Ohshima, 2001 [105]	Borderline personality traits in hysterical neurosis	Compare psychopathology of BPD and hysterical neurosis.	Inpatients and outpatients diagnosed with BPD or hysterical neurosis (dissociative disorder or conversion disorder in DSM-III), n = 88 (nBPD = 48, nHystericalNeurosis = 40). Mean age = 26.1, 67% female. Inclusion criteria: 40 years or younger.	DIB	BPD group showed higher scores of intolerance of aloneness and lower scores of loneliness suggesting both groups experience loneliness but people with BPD find being alone and feeling lonely intolerable.	DIB
Oldham et al., 1996 [106]	Relationship of borderline symptoms to histories of abuse and neglect: A pilot study	Identify whether individuals with BPD who have histories of abuse and neglects can be differentiated from individuals with BPD or other PDs without abuse and neglect.	Patients applying for long-term inpatient treatment for personality disorder, n = 50 (nBPD = 44, nOtherPD = 6).	PDQ-R, Patient history questionnaire	Factor analysis showed abuse history was correlated with chronic emptiness. One subtype of BPD may include a sense of emptiness, relationship instability, and abandonment fears.	PDQ-R

(*Continued*)

Table 3. (Continued)

Source	Title	Aim	Participants	Measures	Key results regarding chronic emptiness or related term	Measurement of chronic emptiness or related term
Perez et al., 2014 [107]	Comparison of clinical and demographic characteristics among borderline personality disorder patients with and without suicidal attempts and non-suicidal self-injury behaviours	Explore demographic, clinical, and symptom differences between groups—Individuals with BPD who (a) have engaged in self-harm attempted suicide, (b) have engaged in self-harm only, and (c) engaged in neither self-harm nor attempted suicide.	Individuals engaged in outpatient services for BPD, n = 85. Mean age = 32, 94% female. Inclusion criteria: Age 13–60, no intellectual, developmental or cognitive impairment which would impede understanding, fluent in Spanish.	Clinical information inventory, self-harm history, suicide attempt history (developed items), SCID I, SCID II, BHS, BDI-II, SRS	The self-harm and suicide attempt group had the higher number of prior suicide attempts among groups and had the highest level of hopelessness. Higher levels of hopelessness are associated with more severe suicide-related behaviours.	SCID II, BHS
Perroud et al., 2013 [108]	Response to psychotherapy in borderline personality disorder and methylation status of the BDNF gene	Compare DNA methylation status of BDNF exons I and IV in BPD subjects to control subjects. Determine if epigenetic processes can be changed by psychological treatment of BPD.	Outpatients with BPD attending intensive DBT program and HC group, n = 167 (nBPD = 115, nHC = 52). Mean age = 35.5, 79% female. Inclusion criteria: No participants with suicidal behaviour, severe impulse dyscontrol or severe anger difficulties.	SCID-II, DIGS, BDI-II, BHS, BIS, CTQ	Following intensive DBT, there was a significant decrease in severity of hopelessness. Changes in methylation status of BDNF was significantly associated with change in hopelessness scores.	BHS
Pinto et al., 1996 [109]	Borderline personality disorder in adolescents: Affective and cognitive features	Determine affective and cognitive symptoms of BPD in adolescents, and identify if depressed adolescents with and without BPD can be distinguished.	Females admitted to adolescent inpatient unit at psychiatric hospital, n = 40 (nBPD = 19, nNoBPD = 21). Mean age = 14.9, 100% female. Inclusion criteria: Age 13–17 years, no psychosis or delirium, no intellectual, developmental or cognitive impairment which would impede understanding, English as first language.	DIB-R, DICA-R-A, BDI, RCMAS, STAXI, HSC, LOC, CASQ, PHCSCS	Severity of hopelessness did not distinguish between depressed adolescents with and without BPD, indicating it is not unique to BPD. Depressed adolescents with BPD were distinguishable by poor self-concept, perhaps related to identity disturbance and chronic emptiness.	HSC, DIB-R
Powers et al., 2013 [110]	Symptoms of borderline personality disorder predict interpersonal (but not independent) stressful life events in a community sample of older adults	Examine whether personality pathology predicts dependent and independent stressful life events in older adults.	Community sample engaged in the St Louis Personality and Aging Network Study who had completed baseline and one follow-up, n = 1630. Mean age = 60, 54% female, 69% Caucasian. Inclusion criteria: Age 55–64.	SIDP-IV, LTE-Q, BDI-II	Unstable interpersonal relationships and impulsivity was associated with higher number of stressful life events, and chronic emptiness was associated with less stressful life events.	SIDP-IV
Price et al., 2019 [111]	Subjective emptiness: A clinically significant trans-diagnostic psychopathology construct	Identify core features of emptiness across diagnosis and create a quantitative measure of emptiness.	Sample 1: Undergraduate students, n = 543. Mean age = 20.2, 76.8% female, 44.5% Hispanic/Latino. Sample 2: Adults diagnosed with psychiatric disorders, n = 1067. Mean age = 29.8, 67.1% female, 81.8% Caucasian. Sample 3: Adults diagnosed with psychiatric disorders, n = 1016. Mean age = 27.5, 56.3% female, 81.5% Caucasian. Inclusion criteria: Age 18+, fluent in English.	ZAN-BPD, PIL-SF, BIS-Brief, CES-D 10, SCIM, PID-5-SF, SES	A unidimensional construct of emptiness was found with core features of detachment from self and others, hollowness, aloneness, disconnection, and unfulfillment. The subjective emptiness scale was developed as a transdiagnostic measure of emptiness.	SES

(*Continued*)

Table 3. (Continued)

Source	Title	Aim	Participants	Measures	Key results regarding chronic emptiness or related term	Measurement of chronic emptiness or related term
Rebok et al., 2015 [112]	Types of borderline personality disorder (BPD) in patients admitted for suicide-related behaviour	Categorise individuals with BPD into types of BPD, and evaluate characteristics of each type.	Inpatients with BPD who recently engaged in suicidal behaviours, n = 87. Mean age = 35, 100% female. Inclusion criteria: Age 18–65, no intellectual, developmental, or cognitive impairment which would impede understanding, no participants who could not understand Spanish fluently.	Clinical interview, BIS, MADRS	5% of participants were classified as an 'empty' type of BPD—lacking a stable identity or goals and reporting feelings of emptiness. The low frequency of 'empty' type of BPD may reflect the difficulty in defining and assessing emptiness, and the difficulty that people with BPD may experience in understanding the term 'emptiness'.	Clinical interview
Richman & Sokolove, 1992 [113]	The experience of aloneness, object representation, and evocative memory in borderline and neurotic patients	Test clinical observations of experience of aloneness, object representation, and evocative memory in BPD.	Outpatients with a diagnosis of BPD or neurotic disorders, n = 40 (nBPD = 20, nNeurotic = 20). Inclusion criteria: Age 18–60, no intellectual, developmental or cognitive impairment which would impede understanding, no current substance use.	Spitzer Borderline Scale, Turner Scale, WMS, HSCL-90, Rorschach Developmental Level Scale, EMT, UCLA loneliness scale (modified)	Individuals with BPD demonstrated more pervasive experiences of aloneness and lower memory quotients compared to the neurotic individuals. Memory quotient and experience of aloneness contributed 46% of the variance in predicting membership to BPD or neurotic group. Individuals with BPD experienced aloneness more frequently and more severely than neurotic individuals.	UCLA Loneliness scale
Rippetoe et al., 1986 [114]	Interactions between depression and borderline personality disorder: A pilot study	Assess overlap of symptoms between BPD and affective disorders and identify BPD symptoms associated with Axis I disorders.	Inpatients at psychiatric unit who met three or more criteria for BPD, n = 43. 54% female. Inclusion criteria: No intellectual, developmental or cognitive impairment which would impede understanding, no psychosis.	Patient chart review, DIB	Individuals with comorbid BPD and depression showed more severe chronic emptiness and boredom and more suicide attempts than individuals with BPD only.	DIB
Rogers et al., 1995 [115]	Aspects of depression associated with borderline personality disorder	Examine relationships between BPD and aspects of depression (boredom, emptiness, abandonment fears, self-condemnation, self-destructiveness, cognitive dysfunction, hopelessness, guilty, sense of failure, somatic complaints, and hopelessness).	Inpatients in public psychiatric hospital meeting criteria for depression, BPD or ASPD, n = 50 (nBPD = 16). Mean age = 27, 100% Caucasian. Inclusion criteria: No intellectual, developmental, or cognitive impairment which would impede understanding, no psychosis.	HDRS, DIB, MCMI, SDS, BDI, items from: CRS, clinical psychopharmacology research group scale, HSCL-90, IDS-SR, borderline and antisocial scales from the Personality Interview Questions	BPD groups had significantly higher emptiness and hopelessness compared to both ASPD and depression. Depression associated with BPD is phenomenologically distinct from depression or ASPD, and includes aspects of emptiness and self-condemnation.	MCMI, DIB

(*Continued*)

Table 3. (Continued)

Source	Title	Aim	Participants	Measures	Key results regarding chronic emptiness or related term	Measurement of chronic emptiness or related term
Sagan, 2017 [116]	The loneliness of personality disorder: a phenomenological study	Investigate and understand the experience of loneliness for people with BPD.	Participants engaged in mental health online networks with a diagnosis of BPD, n = 7, aged 25–61.	Qualitative narrative interview	Compared to samples of participants with other mental health difficulties, participants with BPD viewed loneliness as an inherent trait which is related to an inability to feel connected to the world or other people. Participants with BPD described efforts to foster connection including work or creative pursuits which provided only short-term relief from the feeling of 'un-relatedness'.	Themes from qualitative responses
Sanislow et al., 2000 [117]	Factor analysis of the DSM-III-R borderline personality disorder criteria in psychiatric inpatients	Examine factor structure of BPD in young adult inpatients.	Adult inpatients with BPD at Yale Psychiatric Institute, n = 141. Mean age = 22.4, 53% male, 89% Caucasian. Inclusion criteria: Complete inpatient data available regarding BPD.	PDE	The first of three factors was named 'disturbed relatedness', which comprised unstable relationships, identity disturbance and chronic emptiness. Disturbed relatedness reflects difficulties with relationship to self and others and may comprise the core difficulty of BPD as incomplete sense of self.	PDE
Scheel et al., 2013 [118]	Effects of shame induction in borderline personality disorder	Identify if people with BPD experience stronger and more persistent shame reactions to stimuli compared to participants with MDD and HC.	Inpatients or outpatients with BPD, participants with MDD from Rehabilitation Centre, and HC from community, n = 73 (nBPD = 25, nMDD = 25, nHC = 23). Mean age = 30.5, 100% female.	BDI, TOSCA, ZAN-BPD, developed strength of emotion questions, developed shame-inducing narrative	There was no difference in levels of boredom following shame induction exercise in BPD, MDD or HC groups.	Developed strength of emotion questions
Silk et al., 1995 [119]	Borderline personality disorder symptoms and severity of sexual abuse	Understand the relationship between severity of child sexual abuse experiences and specific BPD symptoms.	Inpatients with BPD, n = 41. Mean age = 29.1, 88% female. Inclusion criteria: No psychosis, organic disorders, no participants who could not understand English fluently.	DIB, FEI, SASSb, HDRS	Sex with a parent during childhood was predictive of feelings of hopelessness and worthlessness for both males and females with BPD. Sex with a parent was predictive of intolerance of being alone for females with BPD.	DIB
Skinstad et al., 1999 [120]	Rorschach responses in Borderline Personality Disorder with alcohol dependence	Examine differences in Rorschach responses between groups with alcohol dependence and; BPD, PDNOS or BPD and another PD.	Male inpatients in alcohol detoxification centre with BPD, PDNOS, or BPD and another PD, n = 43 (nBPD = 19, nPDNOS = 14, nBPD +OPD = 10). Inclusion criteria: No neurological disease, acute stress reaction or primary use of other substances.	Patient charts (behavioural observation, multi-disciplinary assessment), Rorschach test	Both BPD groups showed a response pattern consistent with withdrawing from social interactions and isolation.	Rorschach test

(*Continued*)

Table 3. (Continued)

Source	Title	Aim	Participants	Measures	Key results regarding chronic emptiness or related term	Measurement of chronic emptiness or related term
Soloff et al., 2002 [121]	Childhood abuse as a risk factor for suicidal behaviour in borderline personality disorder	Determine if childhood abuse is a risk factor for suicide in BPD, and if it is related to other risk factors for suicide in BPD.	Inpatients and outpatients of the Western Psychiatric Institute and clinic, and community members with BPD, n = 61. Mean age = 28.2, 82% female.	IPDE, DIB, SCID-I, abuse history, BHS, BIS, BGA, MMPI-PD	For people with BPD who experienced childhood sexual abuse, risk of adult suicide was increased by severity of hopelessness.	BHS
Soloff et al., 2000 [122]	Characteristics of suicide attempts of patients with major depressive episode and borderline personality disorder: A comparative study	Compare aspects of psychopathology in groups with (a) BPD, (b) MDD, and (c) BPD and MDD to determine what predicts lifetime number of suicide attempts or suicidal behaviours.	Inpatients meeting DSM criteria for MDD, BPD or both diagnoses n = 158 (nBPD = 32, nBPD+ MDD = 49, nMDD = 77). Mean age = 32, 65% female, 81% Caucasian. Inclusion criteria: Age 18–83, no psychosis, no other mood disorder.	SCID I, IPDE, SIS, Lethality Scale, HAM-D, BDI, BHS, BDHI, BIS, MMPI, BGLHA, GAS	Hopelessness, lifetime number of suicide attempts, and history of aggression predicted suicide attempts for BPD group. Across groups, lethal intent in suicide attempt was predicted by hopelessness. In the BPD+MDD group an increase in hopelessness predicted increase in objective suicide planning. Increased levels of hopelessness are predictive of lifetime number of suicide attempts.	IPDE
Southward & Cheavens, 2018 [123]	Identifying core deficits in a dimensional model of Borderline Personality Disorder features: A network analysis	Examine network structure of BPD and identify core features of BPD, differences between participants high in BPD features compared to low features, and the differences in structure of BPD between gender.	Participants enrolled in eighteen studies including general population, undergraduate students and participants seeking psychological treatment, n = 4636. Mean age = 22.6, 61.1% female, 74.2% Caucasian. Inclusion criteria: Age 18+.	DERS, IIP, PAI-BOR	Network analysis of BPD features found chronic feelings of emptiness from the Identity Disturbance subscale was the most central node of the network. The node chronic emptiness had a significantly greater strength score that all other nodes except self-harm. Feelings of chronic emptiness were also found to be the most representative item of BPD from the Identity Disturbance subscale of PAI-BOR. In the high BPD features group, loneliness was a central feature of the network.	PAI-BOR

(*Continued*)

Table 3. (Continued)

Source	Title	Aim	Participants	Measures	Key results regarding chronic emptiness or related term	Measurement of chronic emptiness or related term
Speranza et al., 2012 [124]	Factor structure of borderline personality disorder symptomatology in adolescents	Explore factor structure of BPD DSM-IV criteria in adolescents.	Inpatients and outpatient adolescents with BPD, n = 107. Mean age = 16.6, 89% female. Inclusion criteria: No schizophrenia, chronic serious medical illnesses, no intellectual, developmental, or cognitive impairment which would impede understanding.	SIDP-IV, K-SADS-PL	Two factor solution included internally and externally oriented criteria. The internal factor included chronic feelings of emptiness, abandonment fears, identity disturbance, paranoid ideation. This factor may reflect the difficulties with experience of self during adolescence for people with BPD.	SIDP-IV
Stanley et al., 2001 [125]	Are suicide attempters who self-mutilate a unique population?	Compare suicidal behaviours for people with BPD who have a history of self-harm and no history of self-harm.	Individuals with cluster B personality disorder who had made at least one suicide attempt, n = 53. Mean age = 30, 79% female, 89% Caucasian. Inclusion criteria: No current substance use, history of head trauma, no intellectual, developmental or cognitive impairment which would impede understanding.	SIS, SADS, SIB, BGLHA, BDHI, HDRD, BHS, BPRS	BPD participants with a history of self-harm showed significantly higher scores of hopelessness and depression compared to BPD participants without self-harm history.	BHS
Stepp et al., 2009 [126]	Interpersonal and emotional experiences of social interactions in borderline personality disorder	Assess quality of social interactions and the related emotional experience for people with BPD compared to people without PD or with another PD.	Outpatients at Western Psychiatric Institute and Clinic with BPD, other PD, or no PD, n = 111 (nBPD = 42, nOtherPD = 46, nNoPD = 23). Mean age—37.5, 78.4% female, 72.1% Caucasian. Inclusion criteria: Age 21–60, no intellectual, developmental or cognitive impairment which would impede understanding, no illnesses impacting central nervous system.	SCID-I, SCID-II, Social Interaction Diary,	Participants in the BPD group experienced higher levels of emptiness compared to other PD and no PD groups. The BPD group endorsed more severe emptiness during social interactions in relation to romantic partners, family, and friends compared to other groups	SCID-II
Stiglmayr et al., 2005 [127]	Aversive tension in patients with borderline personality disorder: a computer-based controlled field study	Evaluate if participants with BPD report higher, more frequent, more rapid or more long-lasting aversive tension compared to HC.	Inpatients and outpatients with BPD and healthy controls, n = 110 (nBPD = 63, nHC = 40). Mean age = 27.6, 100% female. Inclusion criteria: No diagnosis of schizophrenia or BP disorder, no current substance use disorder.	SCID-II, DIB-R, SCID-I, severity of aversive tension and preceding state	The events 'being alone', 'rejection', and 'failure' accounted for 39% of all events preceding aversive states for the BPD group.	Participant self-report of aversive events

(*Continued*)

Table 3. (Continued)

Source	Title	Aim	Participants	Measures	Key results regarding chronic emptiness or related term	Measurement of chronic emptiness or related term
Taylor & Reeves, 2007 [128]	Structure of borderline personality disorder symptoms in a nonclinical sample	Explore factor structure of BPD criteria in a nonclinical sample.	University students and general population with at least one BPD symptom, n = 82. Mean age = 18.1, 63% female, 68% Caucasian.	SIDP-IV, SCID-II	Endorsing the symptom of chronic emptiness had the highest correlation with a probable diagnosis of BPD. The first factor of analysis was named 'self-other instability' and included chronic emptiness, unstable relationships, identity disturbance, fear of abandonment, and suicidal or self-harm behaviour. This may reflect a pattern where people with BPD try to cope with feelings of emptiness and avoid abandonment by engaging in self-harm or suicidal behaviours. Chronic emptiness may result from instability in identity and relationships.	SCID-II, SIDP-IV
Taylor & Goritsas, 1994 [129]	Dimensions of Identity Diffusion	Determine the factor structure of identity diffusion, and understand the relationship between these factors and psychopathology.	Individuals responding to advertisements in local newspaper and University campus, n = 101. Mean age = 29, 64% female, 75% Caucasian. Inclusion: Age 18–65.	Identity Diffusion Interview, SCID II, PDQ-R, STAI (trait only), SCL-90-R	Core identity diffusion was related to a range of personality pathology including BPD, emptiness, and boredom.	SCID II
Thome et al., 2016 [130]	Confidence in facial emotion recognition in borderline personality disorder	Assess how people with BPD judge the intensity of emotions when presented with differing intensities of facial expressions and identify the level of confidence in the judgement.	Participants with BPD and healthy controls, n = 72 (nBPD = 36, nHC = 36). Mean age = 26.7, 100% female. Inclusion criteria: No bipolar or psychosis, substance use, pregnancy, no intellectual, developmental or cognitive impairment which would impede understanding, no psychotropic medication.	IPDE, SCID-I, BSL, BDI, SES, RSQ, Raven Test, UCLA, STAXI, ratings of intensity of emotions and level of confidence in ratings.	In the BPD group, lower confidence in rating happy faces was associated with higher levels of loneliness and higher expectations of social rejection (higher levels of rejection sensitivity).	UCLA Loneliness scale
Trull & Widiger, 1991 [131]	The relationship between borderline personality disorder criteria and dysthymia symptoms	Assess the relationship between BPD symptoms and dysthymia symptoms.	Inpatients in psychiatric hospital admitted for aggressive, psychotic or suicidal behaviour, n = 391. Mean age = 37, 42% female, 91% Caucasian. Inclusion criteria: No intellectual, developmental, or cognitive impairment which would impede understanding.	Patient charts (admission history, psychosocial history, symptom checklist).	A strong positive relationship was found between recurrent suicidal behaviour and chronic emptiness or boredom. Significant associations were found between diagnosis of dysthymia and emptiness or boredom, affective instability, suicidal behaviour, and efforts to avoid abandonment.	Presence or absence of chronic emptiness in psychiatric chart

(*Continued*)

Table 3. (Continued)

Source	Title	Aim	Participants	Measures	Key results regarding chronic emptiness or related term	Measurement of chronic emptiness or related term
Vardy et al., 2019 [132]	Development and validation of an experience of time alone scale for borderline personality disorder	To investigate the experience of time alone for individuals with BPD and develop a measure that reflects the experience. To then evaluate the developed measure in terms of validity and reliability.	Study 1: Participants diagnosed with BPD attending outpatient treatment, n = 12. Mean age = 36.3, 100% female. Study 2: Participants with BPD and healthy controls, n = 217 (nBPD = 112, nHC = 105). Mean age = 37.5, 88% female. Inclusion criteria: Age 18+, BPD diagnosis (BPD group).	MSI-BPD, HEI-R, AEMS, MGI-5, ETAS	Intolerance of aloneness is a key feature for individuals with BPD. Participants described feelings of helplessness and distress when alone, but also a need to escape from the demands and expectations of others. Being alone and being with others are both dysregulating.	AEMS, HEI-R, ETAS
Verardi et al., 2008 [133]	The personality profile of borderline personality disordered patients using the five-factor model of personality	Analyse the personality profile of people with BPD according to the five-factor personality model.	Outpatients referred to specialist treatment program for BPD, n = 52. Mean age = 30.4, 86.5% female.	IPDE, BFQ, BDI, BHS	Severity of hopelessness and depression did not correlate with the borderline scale of IPDE, or mediate the relationship between personality and personality disorder.	BHS
Verkes et al., 1998 [134]	Platelet serotonin, monoamine oxidase activity, and [3H] paroxetine binding related to impulsive suicide attempts and borderline personality disorder	Examine the relationship between impulsivity in borderline personality disorder and platelet indicators of central serotonergic function.	Individuals with BPD in emergency department for suicide attempt, with at least one prior additional suicide attempt, n = 144. Mean age = 35.4, 65% female. Inclusion criteria: Age 18 +, no intellectual, developmental or cognitive impairment which would impede understanding, no antidepressant use, alcohol and substance dependence, no MDD or BP.	SIS, EASI-III, PDQ-R, blood samples	Chronic emptiness was positively correlated with platelet 5-HT levels. Patients with chronic emptiness, affective instability and identity disturbance comprised the largest proportion of 'grand repeaters' - 4 or more suicide attempts.	PDQ-R
Villeneuve & Lemelin, 2005 [135]	Open-label study of atypical neuroleptic quetiapine for treatment of borderline personality disorder: Impulsivity as main target	Evaluate safety and efficacy of use of quetiapine for individuals with BPD.	Outpatients with a diagnosis of BPD, n = 34. Mean age = 33.7, 73.5% female. Inclusion criteria: Aged 18–60, GAF score of less than 55, no current major depression or substance dependence, no psychosis or BD, no major medical illnesses, no women who were pregnant or of child-bearing age who were not actively taking contraceptives.	DIB-R, UKU, ESRS, BIS, BDHI, BHS, HAM-D, HARS, BPRS, TCI, SAS, GAF	Following 12 weeks of quetiapine, there was no significant reduction in severity of hopelessness.	BHS
Wedig et al, 2013 [136]	Predictors of suicide threats in patients with borderline personality disorder over 16 years of prospective follow-up	Identify predictors of suicide threats in individuals with BPD and other PDs.	Inpatients at McLean Hospital who participated in the McLean Study of Adult Development, n = 290. Mean age = 27, 80% female, 87% Caucasian. Inclusion criteria: Age 18–35, no intellectual, developmental, or cognitive impairment which would impede understanding, no BD or psychosis, fluent in English.	SCID I, DIB-R, DIPD-R, DAS, presence of suicide threat	Feeling hopeless and abandoned and engaging in behaviours of demandingness and manipulation predicted suicide threats.	DIB

(*Continued*)

Table 3. (Continued)

Source	Title	Aim	Participants	Measures	Key results regarding chronic emptiness or related term	Measurement of chronic emptiness or related term
Westen et al., 1992 [137]	Quality of depressive experience in borderline personality disorder and major depression: When depression is not just depression	Understand the experience of depression in a sample of individuals with BPD.	Inpatients at University of Michigan Medical Centre meeting criteria for BPD or MDD, n = 47 (nBPD = 33, nMDD = 14). 72% female. Inclusion criteria: No psychosis, no intake of pharmaceutical medicine within a two week period.	DIB-R, RDC, HAM-D, DEQ, Borderline Depression Factor (developed)	BPD groups with and without MDD can be discriminated from MDD groups by the quality of their depressive experiences with a higher rate of emptiness, loneliness, negative affect, self-concept disturbance, fears of abandonment and interpersonal difficulties. Higher severity of feelings of emptiness, dependency, and rejection sensitivity is associated with more severe depression in BPD.	DIB
Yen et al., 2009 [138]	A 5-day dialectical behaviour therapy partial hospital program for women with borderline personality disorder: predictors of outcome from a 3-month follow-up study	Identify improvement and predictors of outcome following 5-day DBT program over three month follow-up.	Individuals with BPD receiving brief partial-hospitalisation DBT, n = 47. 100% female. Inclusion criteria: Age 18–65, no intellectual, developmental or cognitive impairment which would impede understanding, no psychosis or BP, no substance use disorder.	SCID-II.BDI, BHS, DES, STAXI, BSI (GSI subscale), SIQ.	Participants endorsing chronic emptiness showed improvement in psychopathology, dissociation, and depression over the follow-up, while three participants not endorsing emptiness significantly deteriorated. Meeting criteria for chronic emptiness was not associated with depression or hopelessness scores. Emptiness may be targeted by mindfulness skills of DBT and by provision of caring, engaged, and empathetic staff.	SCID-II, BHS
Zanarini et al., 1998 [139]	The pain of being borderline: Dysphoric states specific to borderline personality disorder	Describe intensity and frequency of dysphoric states for people with BPD.	Inpatients at McLean Hospital meeting criteria for PD, n = 180 (nBPD = 146, nOtherPD = 34). Mean age = 28, ~80% Caucasian. Inclusion criteria: Age 18–35, no intellectual, developmental, or cognitive impairment which would impede understanding, no BD, no psychosis.	SCID II, DIB-R, DIPD-R, DAS	Dysphoric states were experienced at higher severity for individuals in BPD group. Emptiness as a dysphoric affect was experienced very frequently and for a large portion of time for individuals with BPD.	SCID II, DIB
Zanarini et al., 2016 [140]	Fluidity of the subsyndromal phenomenology of borderline personality disorder over 16 years of prospective follow-up	Assess rates of remission and recurrences of symptoms of BPD over 16 years.	Inpatients at McLean Hospital with BPD or other PD, n = 362 (nBPD = 290, nOtherPD = 72). Mean age = 27, 77.1% female, 87% Caucasian. Inclusion criteria: Age 18–35, no intellectual, developmental or cognitive impairment which would impede understanding, no psychosis or BP, fluent in English.	SCID-I, DIB-R, DIPD-R	Chronic hopelessness, loneliness, and emptiness all had low rates of remission and high recurrence over follow-up period. These may be a response to impaired function in relationships and work.	DIB-R, DIPD-R

(*Continued*)

Table 3. (Continued)

Source	Title	Aim	Participants	Measures	Key results regarding chronic emptiness or related term	Measurement of chronic emptiness or related term
Zanarini et al., 2007 [141]	The subsyndromal phenomenology of borderline personality disorder: A 10-year follow-up study	Understand time to remission for BPD symptoms over 10 years. Assess duration of symptoms over time.	Inpatients at McLean Hospital meeting criteria for BPD or another PD, n = 362 (nBPD = 290, nOtherPD = 72). Mean age = 27, 77% female, 87% Caucasian. Inclusion criteria: Age 18–35, no intellectual, developmental, or cognitive impairment which would impede understanding, no BD, and no psychosis.	SCID I, DIB-R, DIPD-R	Temperamental symptoms including emptiness and loneliness were slower to remit in BPD compared to acute symptoms. Median time to remission for chronic emptiness took the longest time (8–10 years), suggesting it may represent a more temperamental factor of BPD.	DIB

AAP—Adult Attachment Projective; AAQ–Acceptance and Action Questionnaire; ACS–Affective Control Scale; ACT–Acceptance and Commitment Therapy; ADP-IV–Assessment of DSM-IV Personality Disorders Questionnaire; ADU—Affective Dictionary Ulm; AEMS–Aloneness and Evocative Memory Scale; ASPD—Antisocial Personality Disorder; ASQ–Attachment Style Questionnaire; AUDADIS-IV—NIAAA Alcohol Use Disorder and Associated Disabilities Interview Schedule-IV; BAI–Beck Anxiety Inventory; BDHI—Buss-Durkee Hostility Inventory; BDI—Beck Depression Inventory; BDI-II—Beck Depression Inventory II; BEST—Borderline Evaluation of Severity of Time; BFQ–Big Five Questionnaire; BGA–Brown-Goodwin Lifetime History of Aggression; BGLHA—Brown-Goodwin Assessment for Lifetime History of Aggression; BHS—Beck Hopelessness Scale; BIS—Barratt Impulsiveness Scale; BIS-Brief–Barratt Impulsiveness Scale Brief; BIS–Background Information Schedule; BORRTI–Bell Object Relations and Reality Testing Inventory; BP–Bipolar Disorder; BPD—Borderline Personality Disorder; BPDSI-IV–Borderline Personality Disorder Severity Index; BPI–Borderline Personality Inventory; BPRS–Brief Psychiatric Rating Scale; BSI–Borderline Syndrome Index; BSI—Beck Suicide Ideation Scale; BSI—Brief Symptom Inventory; BSL–Borderline Symptom List; BSL-23—Borderline Symptom List-23; BSS–Beck Scale for Suicide Ideation; CASQ–Children's Attributional Style Questionnaire; CCI–Combined Criteria Instrument; CES-D 10 –Centre for Epidemiologic Studies Short Depression Scale; CGI—Clinical Global Impression; CGI-M—Clinical Global Impression Modified; COPE–Cope inventory; CRS—Carroll Rating Scale for Depression; CSPS—Child Suicide Potential Scale; CTQ–Childhood Trauma Questionnaire; CTQ-SF—Childhood Trauma Questionnaire Short Form; DAS—Dysfunctional Attitudes Scale, DAS—Dysphoric Affect Scale; DASS-21—Depression Anxiety Stress Scales; DD—Dissociative Disorder; DEQ—Depressive Experiences Questionnaire; DERS—Difficulties in Emotional Regulation Scale; DES–Dissociative Experiences Scale; DIB—Diagnostic Interview for Borderlines; DIB-R—Diagnostic Interview for Borderlines Revised; DICA-R-A–Revised Diagnostic Interview for Children and Adolescents; DIGS–Diagnostic Interview for Genetic Studies; DIPD-R—Diagnostic Interview for DSM-III-R Personality Disorders; DIVA–Diagnostic Interview for ADHD in Adults; DSQ–Defense Style Questionnaire; DSQ–Depressive Syndrome Questionnaire; EASI-III-Emotionality Activity Sociability Impulsivity Temperament Survey III; EASQ—Extended Attributional Style Questionnaire; EMA–Ecological Momentary Awareness; EMT—Early Memories Test; EPSIS I—European Parasuicide Study Interview Schedule I; ERQ—Emotion Regulation Questionnaire; ESRS–Extrapyramidal Symptom Rating Scale; ETAS–Experience of Time Alone Scale; FAPSI—Forms and Function of Self-Injury Scale; FEI–Familial Experiences Interview; FFMQ–Five Factor Mindfulness Questionnaire; fMRI–Functional Magnetic Resonance Imaging; GAF—Global Assessment of Functioning; GAS—Global Assessment Scale; GHQ–General Health Questionnaire; HAM-D—Hamilton Rating Scale for Depression; HARS–Hamilton Anxiety Rating Scale; HC–Healthy Control; HDRS—Hamilton Depression Rating Scale; HEI-R–Hurvich Experience Inventory-Revised; HIT—Holtzman Inkblot Technique; HSC–Hopelessness Scale for Children; HSCL-90—Hopkins Symptom Checklist-90; ICS—Impulsiveness-Control Scale; IDS-SR—Inventory of Depressive Symptomatology Self Report; IIP–Inventory of Interpersonal Problems; IPDE—International Personality Disorder Examination; IPO–Inventory of Personality Organisation; ISAS–Inventory of Statements about Self Injury; IVE–Eysenck Impulsivity Venturesomeness Empathy questionnaire; K-SADS-PL—Schedule for Affective Disorders and Schizophrenia for School Aged Children (6–18 Years)–Lifetime Version; LOC–Locus of Control Scale; LPC-2 –Lifetime Parasuicide Count-2; LTE-Q—List of Threatening Experiences Questionnaire; MADRS–Montgomery-Asberg Depression Rating Scale; MAI—Multidimensional Anger Inventory; MAPI–Millon Adolescent Personality Inventory; MCMI—Millon Clinical Multiaxial Inventory; MDD—Major Depressive Disorder; MHI-5 –Mental Health Inventory 5; MINI—Mini International Neuropsychiatric Interview; MINI-Kid–Mini International Neuropsychiatric Interview for Children and Adolescents; MMPI—Minnesota Multiphasic Personality Inventory; MMPI-PD—Minnesota Multiphasic Personality Inventory Psychopathic deviate subscale; MMSE–Mini Mental State Examination; MOA—Mutality of Autonomy Scale; MOS–Mood Observation Scale; MPQ—Multidimensional Personality Questionnaire; MPQ-BF—Multidimensional Personality Questionnaire Brief Form; MSI-BPD—McLean Screening Instrument for Borderline Personality Disorder; MWT-B–Multiple-Choice Vocabulary Intelligence Test; NESARC–National Epidemiologic Survey on Alcohol and Related Conditions; OAS—Overt Aggression Scale; OMPP—Orbach and Mikulincer Mental Pain Scale; PAI-BOR–Personality Assessment Inventory–Borderline subscale; PBQ-BPD—Personality Beliefs Questionnaire BPD subscale; PCL-R–Psychopathy Checklist Revised; PD—Personality Disorder; PDE–Personality Disorder Examination; PDNOS–Personality Disorder Not Otherwise Specified; PDQ-R—Personality Diagnostic Questionnaire Revised; PHCSCS–Piers-Harris Children's Self-Concept Scale; PHI–Parasuicide Harm Inventory; PID-5—Personality Inventory for DSM-5; PID-5-SF–Personality Inventory for DSM-5 Short Form; PIL-10—Purpose in Life-10 Items; PIL-SF–Purpose in Life Short Form; PSI—Parasuicide History Interview; PTSD—Post Traumatic Stress Disorder; RCMAS–Revised Children's Manifest Anxiety Scale; RDC—Research Diagnostic Criteria; RFL–Reasons for Living; RRS–Risk Rescue Scale; RSE—Rosenberg Self-Esteem Scale; RSQ—Response Style Questionnaire; SADS—Schedule for Affective Disorders and Schizophrenia; SADS—Schedule for Affective Disorders and Schizophrenia; SAES–Spielberger Anger Expression Scale; SAS–Social Adjustment Scale; SASS–Social Adaptation Self-Evaluation; SASSb–Sexual Abuse Severity Scale (only need b if SASS above remains); SBQ–Suicidal Behaviours Questionnaire; SCID-CV—Structured Clinical Interview for DSM-IV Axis I Disorders-Clinician Version; SCID-I—Structured Clinical Interview for DSM-IV Axis I; SCID-II—Structured Clinical Interview for DSM-IV Axis II; SCIM–Self-Concept and Identity Measure; SCL-27 –Symptom Checklist 27; SCL-90-R—Symptom Checklist-90-Revised; SDS—Zung Self-Rating Depression Scale; SEQ—Self-Esteem Questionnaire; SES–Subjective Emptiness Scale; SFS–Social Functioning Scale; SHBCL–Rating scale of self-harm behaviours resulting from impulsivity (developed); SIB–Schedule for Interviewing Borderlines; SIDP-IV—Structured Interview for DSM-IV Personality; SIQ–Self-Injury Questionnaire; SIS—Suicide Intent Scale; SNI–Social Network Index; SOFAS–Social and Occupational Functioning Assessment Scale; SPD–Schizotypal Personality Disorder; SPIKE–Structured Psychopathological Interview and Rating of the Social Consequences of Psychological Disturbances for Epidemiology; SPSI-R—Social Problem-Solving Inventory-Revised; SRS—Suicide Risk Scale; SSI—Scale for Suicidal Ideation; STAI—State-Trait Anxiety Inventory; STAXI—State-Trait Anger Expression Inventory; STEPPS–Systems Training for Emotional Predictability and Problem Solving; SWLS–Satisfaction With Life Scale; TAAD–Triage Assessment for Addictive Disorders; TAU–Treatment as Usual; TCI—Temperament and Character Inventory; TOSCA–Test of Self Conscious Affect; TRES–Therapeutic Relationship Evaluation Scales; UCLA Loneliness Scale—University of California Los Angeles Loneliness Scale; UKU–UKU Side Effect Rating Scale; WAI-S—The Working Alliance Inventory-Short Form; WCCL–Ways of Coping Checklist; WHODAS–World Health Organisation Disability Assessment Schedule; WHOQOL-BREF–World Health Organisation Quality of Life Questionnaire; WSS—Westmead Severity Scale; WURA–Wender Utah Rating Scale; YAMI–Young Atkinson Mode Inventory YRBS—Youth Risk Behaviours Survey; YSQ–Young Schema Questionnaire; ZAN-BPD—Zanarini Rating Scale for Borderline Personality Disorder

https://doi.org/10.1371/journal.pone.0233970.t003

These disparate results may be indicative of the absence of a working definition of emptiness in the field, and associated difficulties in measurement. Similarly, when investigating discriminative symptoms for a diagnosis of BPD and networks of symptoms, emptiness was often identified as an important symptom for distinguishing people with BPD from other samples [66, 103, 104, 123]. However, one study found that chronic emptiness was the least distinguishing factor of BPD [83]. The authors of this study noted that this result may be more reflective of the lack of definition of emptiness, and the difficulty in rating an internal experience that may have little behavioural manifestations, in comparison to symptoms such as unstable relationships.

Two studies discussed the difficulty of defining chronic emptiness. One study suggested that people with BPD may have difficulty defining and articulating the experiences of emptiness [112], while the other study found low correlations between chronic feelings of emptiness and other BPD symptoms, and postulated this may be due to the absence of a definition of chronic emptiness [83]. Only one recent study investigated what the features of chronic emptiness entails [111]. This study reported on feelings of emptiness transdiagnostically, and determined core features of emptiness include a sense of detachment from self and others, hollowness, aloneness, disconnection, and unfulfillment. Some studies examined the relationship of chronic feelings of emptiness as a construct to similar terms, with mixed findings. One study found no significant association between chronic feelings of emptiness and hopelessness or depression [138]. However, another study found that there were high correlations between feelings of emptiness and feelings of hopelessness, isolation, and loneliness (although these correlations did not meet multicollinearity, suggesting the construct of emptiness was still distinct) [85]. Overall, this points to a lack of cohesion in the field and a sense of confusion regarding not only the experience of emptiness, but its boundaries with related concepts.

Measurement of chronic emptiness within studies. In several studies, chronic emptiness was quantified by one item from a wider measure of all BPD symptoms, including structured clinical interviews. The UCLA loneliness measure was used to measure both loneliness and emptiness [113], despite some studies differentiating these concepts [85].

One scale providing some measure of emptiness is the Orbach and Mikulincer Mental Pain Scale (OMMP), which aims to measure mental pain [142]. One factor of the OMMP is labelled emptiness–measuring the loss of subjective and personal meaning due to mental pain. The emptiness factor, however, only explains 2.3% of variance in the scale and the items have not been validated as individual measures of emptiness. As such, inferring severity of chronic feelings of emptiness from the OMMP may not accurately capture the experience of chronic emptiness in BPD.

Price and colleagues [111] recently developed a transdiagnostic measure of emptiness. The resultant Subjective Emptiness Scale (SES) is a seven item self-report measure. Internal consistency of items were high across clinical samples of people with psychiatric disorders (.91-.93) and covariance analyses indicated a unidimensional construct which was able to discriminate people who experienced varying severity of emptiness. The scale included central features of emptiness as a 'pervasive and visceral sense of detachment spanning intrapersonal, interpersonal, and existential domains of experience' which results in 'encompassing feelings of hollowness, absence from one's own life, profound aloneness, disconnection from the world, and chronic unfulfillment' [111, p. 18]. The development of this measure represents a significant contribution to the field, but as it is a transdiagnostic measure it requires validation within a BPD sample to test the symptom of chronic feelings of emptiness. Overall, the difficulties with defining and measuring chronic emptiness may partly explain the mixed findings within many reviewed studies, and points to further research aimed at elucidating the nature of chronic emptiness and the use of appropriate measures.

Age and gender. The prevalence of chronic feelings of emptiness was found to be higher in females with BPD compared to males [78], however a study of parent ratings of BPD in their male sons found that emptiness was reported for 97% of the male BPD group compared to 8% of the control group [74]. This study, however, did not compare genders and was reliant on parent report rather than self-report. It is not possible to provide a judgement of the effect of gender on chronic emptiness, and more study is needed in this area. One study found that chronic emptiness was more severe in older adults compared to younger adults with BPD [97]. Several factors may influence this–firstly, more 'acute' symptoms tend to resolve more quickly while emptiness is more chronic [141]. Perhaps once there is an absence of acute symptomology, chronic emptiness is more noticeable or more severe. Secondly, older adults in this study had poorer social function, which possibly results from a sense of disconnection from others and a feeling of emptiness.

Detachment from self and others. The limited number of studies on emptiness as a disconnection or deficiency in relating to self and others was surprising given the theoretical import placed on this relationship. The strongest support for this model was found by Price and colleagues [111] who proposed that transdiagnostic emptiness was a sense of detachment from interpersonal, intrapersonal and existential spheres. In terms of detachment from self, three studies linked chronic emptiness to identity disturbance, reflecting a detachment from sense of self. A qualitative study which asked for the life stories of people with BPD found an emergent theme of chronic feelings of emptiness relating to disturbances in self-identity [101]. This theme included two subthemes–distorted self-image and lack of identity–resulting in chronic emptiness. One study explored identity diffusion within personality disorder presentations, and found it was associated with feelings of chronic emptiness [129], while another study typified a subtype of people with BPD as the 'empty' type characterised by deficits in identity [112]. These studies suggest that chronic feelings of emptiness are the expression of an underlying diffuse identity, reflecting theoretical claims [11]. In relation to detachment from others, one study reported that social dysfunction was associated with feelings of emptiness [37]. Other studies noted that chronic emptiness occurred most often when individuals with BPD were alone [96] or during interactions with others in close social relationships [126].

Course of chronic emptiness. Five studies presented results relating to the course of chronic feelings of emptiness in BPD. Zanarini and colleagues [139] found that feelings of chronic emptiness were experienced frequently and severely for people with BPD. They also found that when investigating symptoms of BPD over ten years follow-up, feelings of chronic emptiness took the longest time to remit at an average of 8–10 years compared to more acute symptoms [141]. In a similar study, authors further found that over 16 years, chronic emptiness had relatively poor remission rates compared to other symptoms, and high recurrence rates [140]. These studies suggest that feelings of emptiness are difficult to alleviate due to being a 'temperamental' symptom enduring over time rather than an acute symptom. Similarly, another longitudinal study aiming to identify the core clinical features of BPD found that after one year of treatment feelings of emptiness were chronic compared to more acute symptoms, suggesting that chronic feelings of emptiness may represent a core underlying factor in BPD or is not targeted by current treatment [95]. A further study found that in a cohort of people with BPD categorised into a younger age group (18–25) and older age group (45–68), older adults were more likely to report chronic feelings of emptiness [97]. The authors hypothesised that chronic emptiness may be more difficult to change as people age compared to symptoms like mood dysregulation. Overall, the studies focusing on the course of chronic feelings of emptiness reported it as slow to change over time, hypothesising it is a core problem for people with BPD. However, another factor in the chronicity of emptiness could be that it is not targeted in most treatments, and as such it remains untreated for a long period of time.

Chronic emptiness, impulsivity, self-harm and suicide. Ten studies investigated behaviours which followed chronic feelings of emptiness. Both qualitative and quantitative studies supported chronic feelings of emptiness preceding impulsive behaviours. A qualitative study reported that women with BPD attempt to fill the 'void' they experience by acting impulsively [101], while a longitudinal study found that impulsivity and self-harm mediated the relationship between chronic emptiness and days out of work over time, suggesting that chronic emptiness may underlie and result in behavioural symptoms of impulsivity including self-harm [38]. A study in a sample of college students found that 67% of participants reported feelings of emptiness prior to engaging in self-harm behaviours [85]. Another study supported these findings with a different college sample, reporting that chronic feelings of emptiness and identity disturbance were associated with a history of self-harm behaviour, and may be the motivation for engaging in these maladaptive behaviours [39]. Overall, these studies may suggest that the void of emptiness is distressing and a common way to tolerate this distress is to engage in self-harm or impulsive behaviour.

Studies also reported a link between chronic feelings of emptiness and suicidal behaviours. One study hypothesised suicidal behaviours and suicide attempts are engaged in by people with BPD to relieve the tension of feeling empty inside [50]. Supporting this hypothesis, studies have found a strong relationship between chronic emptiness and both suicidal ideation and behaviour [85, 131]. In one study people with BPD who experience chronic emptiness, mood dysregulation and identity disturbance made up the largest proportion of people who had made more than three suicide attempts [134]. Another study found that the presence of chronic emptiness increased the odds of suicide attempts [75]. It is possible that when self-harm and impulsive behaviours no longer relieve the distress of emptiness, suicidal ideation and behaviours arise.

Chronic emptiness as linked to depressive experiences. Seven studies investigated the relationship between chronic emptiness and depressive experiences. One study reported a moderate correlation between feelings of emptiness and depression [85], while another found that individuals endorsing chronic emptiness had significantly more severe depression than those who did not experience chronic emptiness [83]. Chronic emptiness was experienced frequently as a dysphoric affect for individuals with BPD [139], and was significantly associated with a diagnosis of dysthymia [131]. Individuals with diagnoses of BPD and MDD had higher rates of chronic emptiness and suicide attempts than people who met diagnosis for BPD only [114]. Two studies viewed depression in BPD as qualitatively different to that of MDD [115, 137]. Borderline depression was characterised by chronic emptiness and self-condemnation [115]. Emptiness, rejection sensitivity, and dependency were positively associated with more severe depression in BPD which was also related to disturbances of self-concept [137].

Impact of chronic emptiness on social and vocational function. Several studies discussed the impact of chronic feelings of emptiness on vocational and social functioning for people with BPD. One study hypothesised that chronic feelings of emptiness was an understandable response to a life of relational difficulties and impaired work function [140]. A study by Ellison and colleagues [37] found that people presenting for psychiatric treatment who endorsed the single chronic feelings of emptiness symptom had the poorest psychosocial outcomes–the highest number of days out of work and lowest social functioning–compared to groups with any other individual symptom of BPD. Groups with both chronic emptiness and impulsivity had missed more work in the last five years, and groups with chronic emptiness and anger had poorer social functioning compared to people presenting to care with no BPD symptoms. This supported results from a previous study which found that compared to both other personality disorder presentations and people with no personality disorder, people with BPD reported higher levels of chronic emptiness during social interactions with close

relationships [126]. A recent study further found that chronic feelings of emptiness predicted days out of work or normal activities over a one year follow-up, suggesting that chronic emptiness may account for psychosocial dysfunction over time [38]. Interestingly, another study found that after investigating BPD symptoms within a community sample over three times points within 18 months, chronic feelings of emptiness were associated with less stressful life events in the preceding six months compared to more acute symptoms [110]. This is perhaps a reflection of impaired social relationships and subsequent social isolation, leading to minimal stressful interpersonal events.

Treatment for chronic emptiness. Three studies discussed psychological treatment of chronic feelings of emptiness. A range of therapeutic modalities were used, including Supervised Team Management plus Sequential Brief Adlerian Psychodynamic Psychotherapy [47], Systems Training for Emotional Predictability and Problem Solving (STEPPS) [56], and Dialectical Behaviour Therapy (DBT) [138]. Each of the studies found that following treatment chronic feelings of emptiness significantly decreased in BPD samples. The follow-up period of these studies ranged from three months to two years. Authors speculated that chronic emptiness may be alleviated due to an increase in mentalisation skills, decrease in idealising and devaluing patterns within relationships, and an increased capacity to tolerate ambiguity and ambivalence [47]. In the STEPPS study, identity disturbance and mood instability also decreased alongside chronic emptiness [56]. Within the DBT treatment, participants experiencing chronic emptiness at baseline (94% of the sample) improved over the three months of treatment, while participants who did not endorse chronic emptiness (6%) demonstrated statistically significant deterioration of depressive symptoms, dissociative symptoms, and general mental health [138]. Authors postulated there may be two factors influencing the change in chronic emptiness. Firstly, they speculated that the core skill of mindfulness in DBT targets feelings of chronic emptiness. Secondly, they noted the model within which DBT was practiced 'offered a validating community to women' [138, p. 9] with high levels of engagement between participants and practitioners, which may have increased feelings of connection with others and self. It is important to note that there is as yet no causal empirical evidence that supports these hypotheses.

Similar constructs

Hopelessness. Thirty-six studies reported on hopelessness or a combination of hopelessness and another keyword. Hopelessness was typically defined as a disconnection from meaning and disconnection from life [90, 92]. Eleven studies discussed the role of hopelessness in self-harm and suicidality. Overall, severity of hopelessness was associated with suicidal behaviours [68, 107, 121, 136] and in some studies predicted suicide attempts for people with BPD [122]. Several studies focused on feelings of hopelessness as a disconnection from or lack of meaning in life. Low meaning in life was associated with more suicidal ideation and attempts, and hopelessness was also positively associated with suicidal behaviours [68, 107, 121, 122, 136]. Low meaning in life predicted hopelessness [72], and meaning in life also moderated the relationship between previous suicide attempts and hopelessness [92]. One study found that hopelessness mediated the relationship between BPD and suicide attempts [64]. For people who had attempted suicide, severity of hopelessness was higher for those who met diagnosis for BPD [53]. Within a BPD sample, individuals with a history of self-harm expressed higher severity of hopelessness compared to those without self-harm history [125].

Several studies reported on the link between feelings of hopelessness and depressive experiences. Depression was found to predict hopelessness for people with BPD, and was mediated by a sense of meaning in life [90]. Low meaning in life was correlated with feelings of both hopelessness and depression [91] and predicted both depression and hopelessness [72]. One

study found people with comorbid BPD and MDD had more severe hopelessness compared to people with MDD only [46], and people with BPD had higher ratings of depression and hopelessness than people with depressive disorders [69]. However, one study found that hopelessness was unable to distinguish adolescents with and without BPD, suggesting it is not a unique experience of BPD [109]. An additional study found there were no differences in hopelessness and depression between people with BPD and people with MDD [79]. Multiple studies reported on the change in hopelessness throughout treatment for BPD. Severity of hopelessness decreased for people with BPD following DBT treatment–including both intense and adapted DBT programs [70, 80, 86, 94, 108], although one trial found DBT was not superior to Collaborative Assessment and Management of Suicidality treatment [48]. Severity of hopelessness also decreased following Acceptance and Commitment Therapy group treatment [98] and cognitive therapy [60, 67]. One study found that severity of hopelessness did not decrease following treatment with antipsychotic medication for three months [135].

Loneliness. Eighteen studies discussed loneliness or a combination of loneliness and another keyword. Loneliness has been conceptualised as a 'feeling of being alone' [89, p. 1], which is a central feature within the network of BPD symptoms [123]. One study reported that people with BPD perceive loneliness as an inherent trait, not a state, which reflects a feeling of disconnection with the world and can only be temporarily alleviated [116]. Among personality disorders, BPD had the strongest association with loneliness [77], and adolescents who self-harm reported higher rates of loneliness compared to those who did not self-harm [73]. One study reported that loneliness, in addition to chronic emptiness, was a core factor of depression for people with BPD [137], while two other studies clustered chronic emptiness, loneliness and boredom as a discriminating factor of BPD [103, 104]. Loneliness was found to have high recurrence and low remission rates over both 10- and 16-years follow-up [140, 141]. People with BPD demonstrated higher dysregulation compared to healthy controls following presentation of attachment pictures which may induce loneliness, suggesting an intolerance of loneliness [54]. Similarly, people with BPD demonstrated a higher intolerance to loneliness compared to people with dissociative or conversion disorders [105]. One study reported that loneliness in BPD was related to poor social and relational function, but after controlling for these deficits loneliness was still high for people with BPD, suggesting there are multiple factors which contribute to feeling lonely [89]. Feelings of loneliness may also be associated with deficits in facial emotion recognition and behavioural mimicry. Lower confidence in rating facial emotions has been associated with both higher levels of loneliness and higher levels of rejection sensitivity [130]. For people with BPD with the highest scores of loneliness, behavioural mimicry–an important factor in fostering connection between people–was the lowest, suggesting the capacity or desire to connect with others may be impaired when people with BPD feel lonely [76].

Intolerance of aloneness. Intolerance of aloneness broadly relates to the intolerable distress of being alone with one's own thoughts and feelings and an associated incapacity for solitude [132]. Overall findings indicate that people with BPD experience the feeling of aloneness more frequently and severely compared individuals with neurotic disorders [113] and have an intolerance to being alone [61, 105]. A recent study developed a measure for the experience of being alone for individuals with BPD and they report the intolerance of this experience as a salient feature of the disorder [132]. Being alone accounted for 39% of aversive emotions [127] and triggered all BPD symptoms except self-harm [96]. Over ten years intolerance of aloneness was the slowest interpersonal symptom of BPD to remit and still declined less than other features of BPD [65]. Interestingly, an article found that both intolerance of being alone and intolerance of relating to others were salient features of the experience for people with BPD [132].

Alienation and boredom. Three studies reported on feelings of alienation. Alienation was found to be a discriminating feature of BPD [51] and was a risk factor for development of BPD

[59]. It was also associated with disturbed identity [87]. Five studies reported on feelings of boredom or boredom in conjunction with chronic emptiness. Most of these studies were published when the symptom of chronic emptiness or boredom remained in the DSM. Boredom was found to be related to core identity diffusion [129], and suicidal behaviour [131]. Boredom was also associated with feelings of depression [81, 114], however was not associated with feelings of shame [118].

Discussion

This review sought to examine empirical literature and provide a detailed understanding of the symptom of chronic feelings of emptiness in BPD. It also aimed to identify similar constructs to chronic feelings of emptiness such as hopelessness, and provide clarification around the relationship between these experiences. A broad focus was used in this review–articles needed to be peer-reviewed, contain novel empirical data, and needed to have a focus on BPD or BPD symptoms. However, all articles that mentioned emptiness or a similar construct in their abstract and results or discussion were included, even if the main focus of the study was not on these experiences. This allowed an in-depth analysis within a field where chronic feelings of emptiness is often discussed tangentially and is not a common focus of articles. However, this also resulted in a wide array of study methodology and quality, and findings should be interpreted with caution until further research is conducted.

Overall, 99 articles met the inclusion criteria and quality assessment, and key findings were presented. The review identified a number of gaps within the literature, particularly relating to defining and measuring chronic feelings of emptiness. As such, findings extrapolated from this data should be interpreted with caution, as there are significant limitations with measurement within the field. Nevertheless, the included studies provide a good foundation of knowledge regarding chronic feelings of emptiness.

The difficulty in defining and delineating chronic feelings of emptiness

The available research on chronic feelings of emptiness demonstrated a difficulty in understanding the nature of chronic emptiness, defining the experience, and determining its importance to a BPD conceptualisation or diagnosis. Despite the inclusion of 44 studies discussing chronic feelings of emptiness, only one recent study investigated what chronic emptiness is and how it is experienced, although this was not exclusive to individuals with BPD but included all psychiatric diagnoses [111]. It is clear from included studies that it remains difficult to define and measure an absence of experience, and perhaps this has resulted in the reliance on single-item measures that may not adequately capture the true experience of chronic emptiness. Factor analyses differentially placed chronic emptiness with most other symptoms of BPD, perhaps a further indication of the absence of a definition of chronic emptiness. There were minimal personal accounts of people with BPD across the studies. Only three qualitative studies focused on individual experiences, with most other studies utilising prescribed questions which are often developed by clinicians or researchers and may not accurately reflect the experience of individuals with BPD. The lack of understanding about the nature of chronic emptiness may also contribute to the mixed findings of chronic feelings of emptiness within the broader conceptualisation of BPD.

A conceptualisation of the cause and effect of chronic feelings of emptiness within BPD

Despite difficulties defining and delineating chronic emptiness, this review is able to provide a synthesis on the current understanding of chronic emptiness in the theoretical and empirical

literature. Across differing theoretical frameworks, a common theme in the conceptualisation of chronic emptiness is that it results from a disconnection from the self and from other people. This is described differentially in terms of unstable object relations [8, 15, 16, 143, 144], an inability to develop soothing and holding introjects [22], a false self [23], a lack of personal identity [26, 27, 29], insecure attachments [30], invalidation and confusion about internal experiences [31] and deficits in mentalisation [32]. These theories hypothesised the cause of emptiness is inconsistent responses from caregivers resulting in difficulties in knowing oneself and others. Empirical literature that focused on emptiness as a sense of detachment from self and others was not detailed enough to be conclusive, but provided some empirical indications that support these theories. In particular, Price and colleagues [111] found a unidimensional construct of emptiness that was defined as a sense of detachment both from self and others, hollowness, aloneness, disconnection, and unfulfillment [111]. Qualitative narratives have begun to demonstrate in small samples that people with BPD may also associate feelings of chronic emptiness with identity disturbance [101]. Further, treatment that focuses on establishing a more coherent sense of identity and empathic responding to others (e.g. mindfulness [138], mentalisation [47]) also appears to decrease the severity of chronic emptiness, suggesting a possible link between chronic emptiness and disconnection from self and others.

The research was more conclusive on the effects of emptiness for people with BPD. Chronic emptiness was linked to several aversive outcomes including vocational and social function [37, 38], impulsivity, self-harm [85] and suicidal behaviours [75]. A review of the relationship between emptiness and suicidal behaviour found that feelings of emptiness was among the most frequent affect experienced before suicide attempt and after non-fatal suicide attempts [36]. It is possible that deficits in connecting with oneself and others leads to an intolerable sense of emptiness, which is avoided or alleviated by engaging in self-destructive behaviours. Likely, both the feelings of detachment from self and other people and the resultant behaviours impair both social and vocational functioning.

The experience of chronic emptiness has been conceptualised as a component of depression in BPD [40, 115, 145]. Depression has never been a criterion for meeting a diagnosis of BPD [2, 6], but there is high occurrence of both reported depressive experiences and diagnosable depressive disorders including major depressive disorder (MDD) in BPD [146, 147]. There are also indications, however, that there exists a 'borderline depression' which is qualitatively different to the experiences of affective disorders [9]. Current theoretical models purport that the experience of depression in BPD is intrinsically linked to an insecure and negative self-identity, which is exacerbated by dysregulation of emotion, anger, anxiety, and importantly–emptiness [9, 40]. Borderline depression is centred on these experiences of loneliness, anger, impaired self-concept and relationships rather than the characteristic feeling of guilt in MDD [40, 137, 146, 148]. Specifically, it is suggested a discriminating factor between borderline depression and unipolar depression is the experience of emptiness [145]. Borderline depression is hypothesised as a 'feeling of isolation and angry demandingness rather than true depression' [9, p. 36] and represents a more dependent-anaclitic form of depression [20]. This is considered distinct from other depressive disorders, and reflects an experience where a common characteristic is feelings of chronic emptiness.

The proposition that chronic emptiness is a component of 'borderline depression' still needs to be clarified in future research, but at the very least there is a positive association between chronic feelings of emptiness in BPD and severe depression [115, 137]. Two studies which investigated the experience of depression in BPD found that a 'borderline' depression was associated with poor self-concept and a sense of 'void' or 'inner badness' [115, 137]. These feelings of chronic emptiness and perhaps the experience of borderline depression may then result in impulsive behaviours including self-harm or suicidal behaviours to reduce the feeling

of emptiness or depression [38, 39, 85, 101]. The literature in this area remains inconclusive, with recent research with participants with severe and recurrent depression indicating feelings of chronic emptiness are also an important component of their experiences [149].

Research on the cause and effects of chronic emptiness highlights the importance of increasing knowledge of this symptom. Specifically Brickman and colleagues [39] suggests individuals who experience substantial feelings of emptiness should be identified and targeted for interventions, as they may be more likely to engage in maladaptive behaviours and may have a poorer functional prognosis.

A difference in connection–separating chronic emptiness from related constructs of hopelessness, loneliness and intolerance of aloneness

There have been limited efforts to distinguish chronic feelings of emptiness from similar or related constructs. One study investigated the relationship between feelings of chronic emptiness and hopelessness, isolation, loneliness, uselessness, worthlessness, and grief before and after self-harm incidents with university students [85]. It found high correlations between feelings of chronic emptiness and feelings of hopelessness, loneliness and isolation. The authors proposed that these four states all represent a low positive affect and low rates of arousal. Other studies included chronic emptiness, loneliness and hopelessness together as temperamental affective experiences of BPD [139–141], considering them highly related symptoms of BPD.

Based on the reviewed literature, it seems that chronic feelings of emptiness may be distinguishable from similar constructs. We hypothesise that chronic feelings of emptiness is a sense of disconnection from both self and others, hopelessness is a sense of disconnection to meaning or life, loneliness is a sense of disconnection from the world and a feeling of being alone and intolerance of aloneness is the incapacity to be alone. All have a similar basis in a sense of disconnection or detachment but represent different types of disconnect. This hypothesis of emptiness as a sense of detachment and disconnection from self and others echoes that of Price and colleagues [111].

Studies which discussed feelings of hopelessness often viewed it as a disconnection from or lack of meaning in life [72, 90–92]. Less meaning in life was associated with more suicidal behaviours. Interestingly, meaning in life–a sense of purpose to life–has been shown as a factor in decreased suicidal ideation [150] and gratefulness towards life has been shown as a buffer between suicidal ideation and hopelessness [151]. Perhaps a sense of hopelessness may reflect low meaning in life and a disconnection from life.

Studies focusing on loneliness in BPD discussed it as a sense of disconnection from others that people with BPD perceive as a sense of disconnection with the world [116]. Feelings of loneliness were associated with deficits in facial emotion recognition [130] and behavioural mimicry [76]–suggesting impairments in fostering connection with other people. Loneliness may both arise from a sense of social disconnection and perpetuate deficits in social interactions. Similarly, people with BPD demonstrated an intolerance to being alone and feelings of aloneness, but also experienced being in the company of other people as dysregulating [132].

While we hypothesise that chronic emptiness, hopelessness and loneliness may be distinguishable from one another, this is based on limited data which has not explicitly investigated these differences. While Klonsky's [85] research began the process of demarcating these experiences, further research is needed to further investigate the differences in constructs and to test the hypothesis.

Treating the chronically empty: Hypothesising a possible treatment focus

Chronic feelings of emptiness seems to be an affective symptom of BPD that is temperamental–meaning it takes significantly longer to remit compared to more acute symptoms [139,

141]. This may be due to the nature of chronic emptiness itself, or it may be that most current treatments do not focus specifically on alleviating the symptom.

A limited number of studies discussed treatment for chronic feelings of emptiness. Those that did hypothesised that a reduction in chronic feelings of emptiness was related to an increase in mindfulness skills, mentalisation skills, and a decrease in patterns of idealisation and devaluation [47, 138]. Yen and colleagues [138] also considered the impact of validation from clinicians in fostering a sense of community and belonging to self and others. It may be that developing mindfulness skills in DBT within a supportive and safe environment fosters a sense of identity and purpose, and similarly mentalisation-based and transference-focused therapies focus on making sense of the internal world of individuals [152], their self-representations [153], and their connections to others. We hypothesise that work on self-integration including strengthening an understanding of autobiographical history, personal preferences, and sense of self as a unique personality which is allowed to just 'be' may have a flow-on effect and reduce the severity of chronic emptiness. Further, a focus on increasing holding others in mind in addition to basic behavioural strategies may assist in developing social connection. This speculation of the possible treatment for chronic emptiness remains a preliminary hypothesis until research can be conducted testing this specific model.

Study design and methodological limitations

Findings within this review are dependent upon our interpretation of available data. It is important to note that articles included in the review had a wide variance in both scope and quality. In considering the limitations of the field, this systematic review is also limited by the nature of studies reporting of chronic feelings of emptiness; in that findings regarding chronic emptiness were often presented tangentially to other main findings, and as such were often not interpreted at an in-depth level within studies.

Study quality within this area of research is also limited. Few studies stated their sampling procedure or justified their sample size, and reasons why eligible participants chose not to participate were rarely stated. While this is an important area of research, our findings should be interpreted with some caution due to the differences in quality of the included studies. Most studies included in the review presented cross-sectional data (n = 73). Although cross-sectional data is an efficient way to collect data at one time point, it does not allow an analysis of change over time or causal relationships, weakening the conclusions of these articles. However, the findings from longitudinal studies (n = 23) within the included articles were generally consistent with findings from cross-sectional findings.

Despite the importance of being able to identify individuals who experience significant feelings of chronic emptiness, there has historically been a lack of comprehensive methods to measure emptiness. This may reflect the difficulty in defining or measuring an absence of experience which has been described as a sense of 'nothing' [9, 112]. Within included studies, there was a higher proportion of studies utilising measures which were specific to a BPD sample (n = 49) or both specific measures and more general measures (n = 10), compared to general measures only (n = 39). This may have allowed for investigation into features and experiences that are specific to BPD, while also allowing an understanding of difficulties with chronic emptiness or a related construct that are not unique to BPD. However, a significant weakness of the included studies is that the majority of articles employed a single-item measure to quantify presence or severity of chronic feelings of emptiness or a related experience. Emptiness has typically been measured using one individual item from semi-structured interviews or diagnostic tools [154–156]. This may not adequately capture the nature and severity of chronic emptiness and restricts generalisability of findings. Themes arising from the data in

this review should be interpreted cautiously due to the limitation of single-item measurements. The recent development of the transdiagnostic Subjective Experience of Emptiness scale [111] provides a good future direction for further studies which require a more thorough and in-depth understanding of feelings of chronic emptiness.

Implications for future research

The findings of this review support several areas of further research. First, there is a need to better understand the nature of chronic emptiness for people with BPD. Qualitative studies are needed to provide an in-depth account of the personal experience of chronic feelings of emptiness to support the development of better ways to measure or quantify chronic emptiness. Second, research in this area could expand on the recent work of Price and colleagues [111] to validate their transdiagnostic measure of emptiness in a BPD sample or add an extension to this measure that is specific to people with BPD. It may be of use to explore transdiagnostic research into emptiness for other presentations, such as chronic depression [149], eating disorders and substance use to further inform our understanding of and interventions for emptiness. Third, once there is a more thorough understanding of chronic feelings of emptiness and a way to quantify its presence and severity, we may be able to test intervention models targeting chronic emptiness.

Despite the inclusion of chronic feelings of emptiness as a diagnostic marker for BPD, it has not been subjected to the same level of interrogation as other symptoms of BPD. This review provided a detailed analysis on literature regarding the construct of chronic feelings of emptiness. Results demonstrated that while there remains many gaps in our knowledge about chronic emptiness, it is clear that as a whole studies point to it as a signal symptom to consider in conceptualisation and treatment of BPD. Further studies are needed to provide a deeper understanding of chronic emptiness and its clinical significance in order to develop effective interventions.

Supporting information

S1 Table. Results of quality check using MMAT observational descriptive and qualitative tool for included studies.
(DOCX)

S2 Table. PRISMA 2009 checklist.
(DOC)

Author Contributions

Conceptualization: Caitlin E. Miller, Michelle L. Townsend, Brin F. S. Grenyer.

Data curation: Caitlin E. Miller.

Formal analysis: Caitlin E. Miller, Michelle L. Townsend, Nicholas J. S. Day.

Investigation: Caitlin E. Miller.

Methodology: Caitlin E. Miller.

Supervision: Michelle L. Townsend, Brin F. S. Grenyer.

Writing – original draft: Caitlin E. Miller.

Writing – review & editing: Caitlin E. Miller, Michelle L. Townsend, Nicholas J. S. Day, Brin F. S. Grenyer.

References

1. Lamprell M. From emptiness to loss: A journey from the intrapersonal to the interpersonal. British Journal of Psychotherapy. 1994; 10(3):331–43. https://doi.org/10.1111/j.1752-0118.1994.tb00665.x
2. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. Fifth ed. Washington, D.C: American Psychiatric Association; 2013.
3. Skodol A, Stein M, Hermann R. Borderline personality disorder: Epidemiology, pathogenesis, clinical features, course, assessment, and diagnosis. In: Post T, editor. UpToDate. Waltham, MA: UpToDate; 2019.
4. Lewis KL, Fanaian M, Kotze B, Grenyer BF. Mental health presentations to acute psychiatric services: 3-year study of prevalence and readmission risk for personality disorders compared with psychotic, affective, substance or other disorders. BJPsych Open. 2019; 5(1):1–7. https://doi.org/10.1192/bjo.2018.72 PMID: 30575497
5. Grenyer BFS. Revising the diagnosis of personality disorder: Can it be single, clinical and factorial? Australian and New Zealand Journal of Psychiatry. 2017; 52(2):202–3. https://doi.org/10.1177/0004867417741984 PMID: 29143533
6. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. Third ed. Washington, D.C.: American Psychiatric Association; 1980.
7. Deutsch H. Some forms of emotional disturbance and their relationship to schizophrenia. Psychoanalytic Quarterly. 1942; 11(3):301–21. https://doi.org/10.1080/21674086.1942.11925501
8. Kernberg OF. Borderline personality organisation. Journal of the American Psychoanalytic Association. 1967; 15:641–85. https://doi.org/10.1177/000306516701500309 PMID: 4861171
9. Cary GL. The borderline condition: A structural-dynamic viewpoint. Psychoanalytic Review. 1972; 59 (1):33–54. PMID: 5021369
10. Singer M. The Experience of Emptiness in Narcissistic and Borderline States: II. the Struggle for a Sense of Self and the Potential for Suicide. International Review of Psycho-Analysis. 1977; 4:471–9.
11. Kernberg OF. Severe Personality Disorders: Psychotherapeutic Strategies. United States of America: Yale University; 1984.
12. LaFarge L. Emptiness as defense in severe regressive states. Journal of the American Psychoanalytic Association. 1989; 37(4):965–95. https://doi.org/10.1177/000306518903700405 PMID: 2632631
13. Kernberg OF. Identity: Recent Findings and Clinical Implications. The Psychoanalytic Quarterly. 2017; 75(4):969–1004. https://doi.org/10.1002/j.2167-4086.2006.tb00065.x PMID: 17094369
14. Fuchs T. Fragmented selves: Temporality and identity in borderline personality disorder. Psychopathology. 2007; 40:379–87. https://doi.org/10.1159/000106468 PMID: 17652950
15. Kernberg O. The treatment of patients with borderline personality organization. International Journal of Psychoanalysis. 1968; 49:600–19. PMID: 5715051
16. Kernberg O. Borderline conditions and pathological narcissism. New York: Jason Aronson; 1975.
17. Levy ST. Psychoanalytic perspectives on emptiness. Journal of the American Psychoanalytic Association. 1984; 32(2):387–404. https://doi.org/10.1177/000306518403200207 PMID: 6736548
18. Buie DH, Adler G. Definitive treatment of the borderline personality. International Journal of Psychoanalytic Psychotherapy. 1982; 9:51–87. PMID: 6759434
19. Hartocollis P. Affects in borderline disorders. In: Hartocollis P, editor. Borderline personality disorders. New York: International Universities Press; 1977.
20. Pazzagli A, Monti MR. Dysphoria and aloneness in borderline personality disorder. Psychopathology. 2000; 33(4):220–6. https://doi.org/10.1159/000029147 PMID: 10867581
21. Cohen CP, Sherwood VR. Becoming a constant object in psychotherapy with the borderline patient. New Jersey: Jason Aronson; 1996.
22. Adler G, Buie DH. Aloneness and borderline psychopathology: The possible relevance of child development issues. International Journal of Psychoanalysis. 1979; 60:83–96. PMID: 457345
23. Winnicott D W. Fear of breakdown. International Review of Psychoanalysis. 1974;(1):103–7.
24. Winnicott DW. The maturational processes and the facilitating environment: Studies in the theory of emotional development. London: Routledge; 1984.
25. Grinker R, Webbie B, Drye R. The Borderline Syndrome. A Behavioral Study of Ego-Functions. New York: Basic Books; 1968.
26. OPD Task Force. Operationalized psychodynamic diagnosis OPD-2: Manual of diagnosis and treatment planning: Hogrefe Publishing; 2008.

27. Caligor E, Kernberg OF, Clarkin JF, Yeomans FE. Psychodynamic therapy for personality pathology: treating self and interpersonal functioning: American Psychiatric Pub; 2018.

28. Linehan MM. DBT skills training manual. New York: Guilford Publications; 2015.

29. Linehan MM. Cognitive behavioural treatment of borderline personality disorder. New York: The Guilford Press; 1993.

30. Levy KN. The implications of attachment theory and research for understanding borderline personality disorder. Development and Psychopathology. 2005; 17(4):959–86. https://doi.org/10.1017/s0954579405050455 PMID: 16613426

31. Fruzzetti AE, Shenk C, Hoffman PD. Family interaction and the development of borderline personality disorder: A transactional model. Development and Psychopathology. 2005; 17(4):1007–30. https://doi.org/10.1017/s0954579405050479 PMID: 16613428

32. Fonagy P. Attachment and borderline personality disorder. Journal of the american psychoanalytic association. 2000; 48(4):1129–46. https://doi.org/10.1177/00030651000480040701 PMID: 11212185

33. Winsper C. The aetiology of borderline personality disorder (BPD): contemporary theories and putative mechanisms. Current opinion in psychology. 2018; 21:105–10. https://doi.org/10.1016/j.copsyc.2017.10.005 PMID: 29182951

34. Koenigsberg HW. Affective instability: toward an integration of neuroscience and psychological perspectives. Journal of Personality Disorders 2010; 24(1):60–82. https://doi.org/10.1521/pedi.2010.24.1.60 PMID: 20205499

35. Sharma L, Markon KE, Clark LA. Toward a theory of distinct types of "impulsive" behaviors: A meta-analysis of self-report and behavioral measures. Psychological Bulletin. 2014; 140(2):374–408. https://doi.org/10.1037/a0034418 PMID: 24099400

36. Blasco-Fontecilla H, de Leon-Martiniez V, Delgado-Gomex D, Giner L, Guillaume S, Courtet P. Emptiness and suicidal behaviour: An exploratory review. Suicidology Online. 2013; 4(4):21–32.

37. Ellison WD, Rosenstein L, Chelminski I, Dalrymple K, Zimmerman M. The clinical significance of single features of borderline personality disorder: Anger, affective instability, impulsivity, and chronic emptiness in psychiatric outpatients. Journal of Personality Disorders. 2016; 30(2):261–70. https://doi.org/10.1521/pedi_2015_29_193 PMID: 25893552

38. Miller CE, Lewis KL, Huxley E, Townsend ML, Grenyer BFS. A 1-year follow-up study of capacity to love and work: What components of borderline personality disorder most impair interpersonal and vocational functioning? Personality and Mental Health. 2018; 12(4):334–44. https://doi.org/10.1002/pmh.1432 PMID: 30136443

39. Brickman LJ, Ammerman BA, Look AE, Berman ME, McCloskey MS. The relationship between non-suicidal self-injury and borderline personality disorder symptoms in a college sample. Borderline Personality Disorder and Emotion Regulation. 2014; 1(14):1–8. https://doi.org/10.1186/2051-6673-1-14 PMID: 26401298

40. Kohling J, Ehrenthal JC, Levy KN, Schauenburg H, Dinger U. Quality and severity of depression in borderline personality disorder: A systematic review and meta-analysis. Clinical Psychology Review. 2015; 37:13–25. https://doi.org/10.1016/j.cpr.2015.02.002 PMID: 25723972

41. Moher D, Liberati A, Tetzlaff J, Altman DG, Prisma Group. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. Annals of Internal Medicine. 2010; 151(4):264–9. https://doi.org/0.1371/journal.pmed.1000097

42. Crowe M, Sheppard L. A review of critical appraisal tools show they lack rigor: alternative tool structure is proposed. Journal of Clinical Epidemiology. 2011; 64(1):79–89. https://doi.org/10.1016/j.jclinepi.2010.02.008 PMID: 21130354

43. Pace R, Pluye P, Bartlett G, Macaulay AC, Salsberg J, Jagosh J, et al. Testing the reliability and efficiency of the pilot Mixed Methods Appraisal Tool (MMAT) for systematic mixed studies review. International Journal of Nursing Studies. 2012; 49(1):47–53. https://doi.org/10.1016/j.ijnurstu.2011.07.002 PMID: 21835406

44. Pluye P, Gagnon M-P, Griffiths F, Johnson-Lafleur J. A scoring system for appraising mixed methods research, and concomitantly appraising qualitative, quantitative and mixed methods primary studies in mixed studies reviews. International Journal of Nursing Studies. 2009; 46(4):529–46. https://doi.org/10.1016/j.ijnurstu.2009.01.009 PMID: 19233357

45. Mallen C, Peat G, Croft P. Quality assessment of observational studies is not commonplace in systematic reviews. Journal of Clinical Epidemiology. 2006; 59(8):765–9. https://doi.org/10.1016/j.jclinepi.2005.12.010 PMID: 16828667

46. Abela JR, Payne AV, Moussaly N. Cognitive vulnerability to depression in individuals with borderline personality disorder. Journal of Personality Disorders. 2003; 17(4):319–29. https://doi.org/10.1521/pedi.17.4.319.23968 PMID: 14521180

47. Amianto F, Ferrero A, Pierò A, Cairo E, Rocca G, Simonelli B, et al. Supervised team management, with or without structured psychotherapy, in heavy users of a mental health service with borderline personality disorder: A two-year follow-up preliminary randomized study. BMC Psychiatry. 2011; 11 (1):181–95. https://doi.org/10.1186/1471-244X-11-181 PMID: 22103890

48. Andreasson K, Krogh J, Wenneberg C, Jessen HK, Krakauer K, Gluud C, et al. Effectiveness of dialectical behavior therapy versus collaborative assessment and management of suicidality treatment for reduction of self-harm in adults with borderline personality traits and disorder—A randomized observer-blinded clinical trial. Depression and Anxiety. 2016; 33(6):520–30. https://doi.org/10.1002/da.22472 PMID: 26854478

49. Bach B, Sellbom M. Continuity between DSM-5 categorical criteria and traits criteria for borderline personality disorder. The Canadian Journal of Psychiatry. 2016; 61(8):489–94. https://doi.org/10.1177/0706743716640756 PMID: 27310232

50. Becker DF, McGlashan TH, Grilo CM. Exploratory factor analysis of borderline personality disorder criteria in hospitalized adolescents. Comprehensive Psychiatry. 2006; 47(2):99–105. https://doi.org/10.1016/j.comppsych.2005.07.003 PMID: 16490567

51. Bell M, Billington R, Cicchetti D, Gibbons J. Do object relations deficits distinguish BPD from other diagnostic groups? Journal of Clinical Psychology. 1988; 44(4):511–6. https://doi.org/10.1002/1097-4679(198807)44:4<511::aid-jclp2270440406>3.0.co;2-t PMID: 3170755

52. Benazzi F. Borderline personality–bipolar spectrum relationship. Progress in Neuro-Psychopharmacology Biological Psychiatry. 2006; 30(1):68–74. https://doi.org/10.1016/j.pnpbp.2005.06.010 PMID: 16019119

53. Berk MS, Jeglic E, Brown GK, Henriques GR, Beck AT. Characteristics of recent suicide attempters with and without borderline personality disorder. Archives of Suicide Research. 2007; 11(1):91–104. https://doi.org/10.1080/13811110600992951 PMID: 17178645

54. Bernheim D, Gander M, Kriegel S, Becker M, Lischke A, Mentel R, et al. Change of attachment characteristics during dialectic behavioral therapy for borderline patients. Zeitschrift für Klinische Psychologie, Psychiatrie und Psychotherapie. 2018; 66(2):119–31. https://doi.org/10.1024/1661-4747/a000347

55. Bhar SS, Brown GK, Beck AT. Dysfunctional beliefs and psychopathology in borderline personality disorder. Journal of Personality Disorders. 2008; 22(2):165–77. https://doi.org/10.1521/pedi.2008.22.2.165 PMID: 18419236

56. Black DW, Blum N, Allen J. STEPPS treatment programme for borderline personality disorder: Which scale items improve? An item-level analysis. Personality and Mental Health. 2018; 12(4):345–54. https://doi.org/10.1002/pmh.1431 PMID: 30152603

57. Bohus M, Limberger MF, Frank U, Chapman AL, Kühler T, Stieglitz R-D. Psychometric properties of the borderline symptom list (BSL). Psychopathology. 2007; 40(2):126–32. https://doi.org/10.1159/000098493 PMID: 17215599

58. Bohus M, Limberger MF, Frank U, Sender I, Gratwohl T, Stieglitz R-D. Development of the borderline symptom list. Psychotherapie, Psychosomatik, Medizinische Psychologie. 2001; 51(5):201–11. https://doi.org/10.1055/s-2001-13281 PMID: 11417358

59. Bornovalova MA, Gratz KL, Delany-Brumsey A, Paulson A, Lejuez C. Temperamental and environmental risk factors for borderline personality disorder among inner-city substance users in residential treatment. Journal of Personality Disorders. 2006; 20(3):218–31. https://doi.org/10.1521/pedi.2006.20.3.218 PMID: 16776552

60. Brown GK, Newman CF, Charlesworth SE, Crits-Christoph P, Beck AT. An open clinical trial of cognitive therapy for borderline personality disorder. Journal of Personality Disorders. 2004; 18(3):257–71. https://doi.org/10.1521/pedi.18.3.257.35450 PMID: 15237046

61. Buchheim A, Erk S, George C, Kächele H, Kircher T, Martius P, et al. Neural correlates of attachment trauma in borderline personality disorder: a functional magnetic resonance imaging study. Psychiatry Research: Neuroimaging. 2008; 163(3):223–35. https://doi.org/10.1016/j.pscychresns.2007.07.001 PMID: 18635342

62. Chabrol H, Chouicha K, Montovany A, Callahan S. Symptomatology of DSM IV borderline personality disorder in a non-clinical sample of adolescents: Study of 35 borderline cases. Encephale-revue De Psychiatrie Clinique Biologique et Therapeutique. 2001; 27(2):120–7.

63. Chabrol H, Montovany A, Callahan S, Chouicha K, Ducongé E. Factor analyses of the DIB-R in adolescents. Journal of Personality Disorders. 2002; 16(4):374–84. https://doi.org/10.1521/pedi.16.4.374.24123 PMID: 12224129

64. Chapman AL, Specht MW, Cellucci T. Factors associated with suicide attempts in female inmates: The hegemony of hopelessness. Suicide and Life-Threatening Behavior. 2005; 35(5):558–69. https://doi.org/10.1521/suli.2005.35.5.558 PMID: 16268772

65. Choi-Kain LW, Zanarini MC, Frankenburg FR, Fitzmaurice GM, Reich DB. A longitudinal study of the 10-year course of interpersonal features in borderline personality disorder. Journal of Personality Disorders. 2010; 24(3):365–76. https://doi.org/10.1521/pedi.2010.24.3.365 PMID: 20545500

66. Conte HR, Plutchik R, Karasu TB, Jerrett I. A self-report borderline scale: Discriminative validity and preliminary norms. Journal of Nervous Mental Disease. 1980; 168(7):428–35. https://doi.org/10.1097/00005053-198007000-00007 PMID: 7400793

67. Cottraux J, Note ID, Boutitie F, Milliery M, Genouihlac V, Yao SN, et al. Cognitive therapy versus Rogerian supportive therapy in borderline personality disorder. Psychotherapy and Psychosomatics. 2009; 78(5):307–16. https://doi.org/10.1159/000229769 PMID: 19628959

68. Espinosa JJ, Grynberg BB, Mendoza MPR. Suicidal risk and lethality in patients with borderline personality disorder (BPD), at a psychiatry hospital. Salud Mental. 2009; 32(4):317–25. https://doi.org/10.1521/pedi.2013.27.2.222

69. Fertuck EA, Karan E, Stanley B. The specificity of mental pain in borderline personality disorder compared to depressive disorders and healthy controls. Borderline Personality Disorder and Emotion Dysregulation. 2016; 3(1):2–10. https://doi.org/10.1186/s40479-016-0036-2 PMID: 26918191

70. Flynn D, Kells M, Joyce M, Corcoran P, Gillespie C, Suarez C, et al. Standard 12 month dialectical behaviour therapy for adults with borderline personality disorder in a public community mental health setting. Borderline Personality Disorder and Emotion Dysregulation. 2017; 4(1):19–30. https://doi.org/10.1186/s40479-017-0070-8 PMID: 28989706

71. Fritsch S, Donaldson D, Spirito A, Plummer B. Personality characteristics of adolescent suicide attempters. 2000; 30(4):219–35. https://doi.org/10.1023/B:CHUD.0000037151.02381.52 PMID: 10921206

72. García-Alandete J, Salvador M, José H, Pérez Rodríguez S. Predicting role of the meaning in life on depression, hopelessness, and suicide risk among borderline personality disorder patients. Universitas Psychologica. 2014; 13(4):1545–55. https://doi.org/10.11144/Javeriana.UPSY13-4.prm

73. Glenn CR, Klonsky ED. Nonsuicidal self-injury disorder: An empirical investigation in adolescent psychiatric patients. Journal of Clinical Child & Adolescent Psychology. 2013; 42(4):496–507. https://doi.org/10.1080/15374416.2013.794699 PMID: 23682597

74. Goodman M, Patel U, Oakes A, Matho A, Triebwasser J. Developmental trajectories to male borderline personality disorder. Journal of Personality Disorders. 2013; 27(6):764–82. https://doi.org/10.1521/pedi_2013_27_111 PMID: 23795759

75. Harford TC, Chen CM, Kerridge BT, Grant BF. Borderline personality disorder and violence toward self and others: A national study. Journal of Personality Disorders. 2018; 32:1–18. https://doi.org/10.1521/pedi_2018_32_361 PMID: 30307827

76. Hauschild S, Winter D, Thome J, Liebke L, Schmahl C, Bohus M, et al. Behavioural mimicry and loneliness in borderline personality disorder. Comprehensive Psychiatry. 2018; 82:30–6. https://doi.org/10.1016/j.comppsych.2018.01.005 PMID: 29407356

77. Hengartner MP, Müller M, Rodgers S, Rössler W, Ajdacic-Gross V. Interpersonal functioning deficits in association with DSM-IV personality disorder dimensions. Social Psychiatry and Psychiatric Epidemiology. 2014; 49(2):317–25. https://doi.org/10.1007/s00127-013-0707-x PMID: 23674198

78. Hoertel N, Peyre H, Wall MM, Limosin F, Blanco C. Examining sex differences in DSM-IV borderline personality disorder symptom expression using Item Response Theory (IRT). Journal of Psychiatric Research. 2014; 59:213–9. https://doi.org/10.1016/j.jpsychires.2014.08.019 PMID: 25258339

79. Horesh N, Orbach I, Gothelf D, Efrati M, Apter A. Comparison of the suicidal behavior of adolescent inpatients with borderline personality disorder and major depression. The Journal of Nervous and Mental Disease. 2003; 191(9):582–8. https://doi.org/10.1097/01.nmd.0000087184.56009.61 PMID: 14504567

80. Hulbert C, Thomas R. Public sector group treatment for severe personality disorder: a 12-month follow-up study. Australasian Psychiatry. 2007; 15(3):226–31. https://doi.org/10.1080/10398560701317101 PMID: 17516186

81. James A, Berelowitz M, Vereker M. Borderline personality disorder: A study in adolescence. European Child and Adolescent Psychiatry. 1995; 5(1):11–7. https://doi.org/10.1007/BF00708209 PMID: 9117533

82. Javaras KN, Zanarini MC, Hudson JI, Greenfield SF, Gunderson JG. Functional outcomes in community-based adults with borderline personality disorder. Journal of Psychiatric Research. 2017; 89:105–14. https://doi.org/10.1016/j.jpsychires.2017.01.010 PMID: 28213169

83. Johansen M, Karterud S, Pedersen G, Gude T, Falkum E. An investigation of the prototype validity of the borderline DSM-IV construct. Acta Psychiatrica Scandinavica. 2004; 109(4):289–98. https://doi.org/10.1046/j.1600-0447.2003.00268.x PMID: 15008803

84. Kerr S, Dalrymple K, Chelminski I, Zimmerman M. Depression and substance use disorders in the offspring of depressed parents as a function of the parent's borderline personality disorder symptomatology. Annals of Clinical Psychiatry. 2018; 30(2):207–14. PMID: 30028895

85. Klonsky ED. What is emptiness? Clarifying the 7th criterion for borderline personality disorder. Journal of Personality Disorders. 2008; 22(4):418–26. https://doi.org/10.1521/pedi.2008.22.4.418 PMID: 18684053

86. Koons CR, Robins CJ, Tweed JL, Lynch TR, Gonzalez AM, Morse JQ, et al. Efficacy of dialectical behavior therapy in women veterans with borderline personality disorder. Behavior Therapy. 2001; 32 (2):371–90. https://doi.org/10.1016/S0005-7894(01)80009-5

87. Lenzenweger MF, McClough JF, Clarkin JF, Kernberg OF. Exploring the interface of neurobehaviorally linked personality dimensions and personality organization in borderline personality disorder: The Multidimensional Personality Questionnaire and Inventory of Personality Organization. Journal of Personality Disorders. 2012; 26(6):902–18. https://doi.org/10.1521/pedi.2012.26.6.902 PMID: 23281675

88. Leppänen V, Vuorenmaa E, Lindeman S, Tuulari J, Hakko H. Association of parasuicidal behaviour to early maladaptive schemas and schema modes in patients with BPD: The Oulu BPD study. Personality and Mental Health. 2016; 10(1):58–71. https://doi.org/10.1002/pmh.1304 PMID: 26333517

89. Liebke L, Bungert M, Thome J, Hauschild S, Gescher DM, Schmahl C, et al. Loneliness, social networks, and social functioning in borderline personality disorder. Personality Disorders: Theory, Research, and Treatment. 2017; 8(4):349. https://doi.org/10.1037/per0000208 PMID: 27505189

90. Marco JH, García-Alandete J, Perez S, Botella C. The meaning in life as mediating variable between depression and hopelessness in patients with borderline personality disorder. Behavioral Psychology. 2014; 22(2):293–305.

91. Marco JH, García-Alandete J, Pérez S, Guillen V, Jorquera M, Espallargas P, et al. Meaning in life and non-suicidal self-injury: A follow-up study with participants with Borderline Personality Disorder. Psychiatry Research. 2015; 230(2):561–6. https://doi.org/10.1016/j.psychres.2015.10.004 PMID: 26493324

92. Marco JH, Guillén V, Botella C. The buffer role of meaning in life in hopelessness in women with borderline personality disorders. Psychiatry Research. 2017; 247:120–4. https://doi.org/10.1016/j.psychres.2016.11.011 PMID: 27888681

93. McGlashan TH. Testing DSM-III symptom criteria for schizotypal and borderline personality disorders. Archives of General Psychiatry. 1987; 44(2):143–8. https://doi.org/10.1001/archpsyc.1987.01800140045007 PMID: 3813809

94. McQuillan A, Nicastro R, Guenot F, Girard M, Lissner C, Ferrero F. Intensive dialectical behavior therapy for outpatients with borderline personality disorder who are in crisis. Psychiatric Services. 2005; 56(2):193–7. https://doi.org/10.1176/appi.ps.56.2.193 PMID: 15703347

95. Meares R, Gerull F, Stevenson J, Korner A. Is self disturbance the core of borderline personality disorder? An outcome study of borderline personality factors. The Australian and New Zealand Journal of Psychiatry. 2011; 45(3):214–22. https://doi.org/10.3109/00048674.2010.551280 PMID: 21438747

96. Miskewicz K, Fleeson W, Arnold EM, Law MK, Mneimne M, Furr RM. A contingency-oriented approach to understanding borderline personality disorder: Situational triggers and symptoms. Journal of Personality Disorders. 2015; 29(4):486–502. https://doi.org/10.1521/pedi.2015.29.4.486 PMID: 26200848

97. Morgan TA, Chelminski I, Young D, Dalrymple K, Zimmerman M. Differences between older and younger adults with borderline personality disorder on clinical presentation and impairment. Journal of Psychiatric Research. 2013; 47(10):1507–13. https://doi.org/10.1016/j.jpsychires.2013.06.009 PMID: 23866737

98. Morton J, Snowdon S, Gopold M, Guymer E. Acceptance and commitment therapy group treatment for symptoms of borderline personality disorder: A public sector pilot study. Cognitive and Behavioral Practice. 2012; 19(4):527–44. https://doi.org/10.1016/j.cbpra.2012.03.005

99. Nicastro R, Prada P, Kung A-L, Salamin V, Dayer A, Aubry J-M, et al. Psychometric properties of the French borderline symptom list, short form (BSL-23). Borderline Personality Disorder and Emotion Dysregulation. 2016; 3(4):1–9. https://doi.org/10.1186/s40479-016-0038-0 PMID: 27293768

100. Nisenbaum R, Links PS, Eynan R, Heisel M. Variability and predictors of negative mood intensity in patients with borderline personality disorder and recurrent suicidal behavior: Multilevel analyses applied to experience sampling methodology. Journal of Abnormal Psychology. 2010; 119(2):433. https://doi.org/10.1037/a0018696 PMID: 20455616

101. Ntshingila N, Poggenpoel M, Myburgh C, Temane A. Experiences of women living with borderline personality disorder. Health SA Gesondheid. 2016; 21(1):110–9. https://doi.org/10.4102/hsag.v21i0.1017

102. Nurnberg HG, Feldman A, Hurt SW, Suh R. Core criteria for diagnosing borderline patients. Hillside Journal of Clinical Psychiatry. 1986; 8(2):111–31. PMID: 3557288

103. Nurnberg HG, Hurt SW, Feldman A, Suh R. Efficient diagnosis of borderline personality disorder. Journal of Personality Disorders. 1987; 1(4):307–16.

104. Nurnberg HG, Raskin M, Levine PE, Pollack S, Siegel O, Prince R. Hierarchy of DSM-III-R criteria efficiency for the diagnosis of borderline personality disorder. Journal of personality disorders. 1991; 5 (3):211–24.

105. Ohshima T. Borderline personality traits in hysterical neurosis. Psychiatry and Clinical Neurosciences. 2001; 55(2):131–6. https://doi.org/10.1046/j.1440-1819.2001.00800.x PMID: 11285092

106. Oldham JM, Skodol AE, Gallaher PE, Kroll ME. Relationship of borderline symptoms to histories of abuse and neglect: A pilot study. Psychiatric Quarterly. 1996; 67(4):287–95. https://doi.org/10.1007/BF02326372 PMID: 8938829

107. Pérez S, Marco JH, García-Alandete J. Comparison of clinical and demographic characteristics among borderline personality disorder patients with and without suicidal attempts and non-suicidal self-injury behaviors. Psychiatry Research. 2014; 220(3):935–40. https://doi.org/10.1016/j.psychres.2014.09.001 PMID: 25312392

108. Perroud N, Salzmann A, Prada P, Nicastro R, Hoeppli M, Furrer S, et al. Response to psychotherapy in borderline personality disorder and methylation status of the BDNF gene. Translational Psychiatry. 2013; 3(1):e207. https://doi.org/10.1038/tp.2012.140 PMID: 23422958

109. Pinto A, Grapentine WL, Francis G, Picariello CM. Borderline personality disorder in adolescents: Affective and cognitive features. Journal of the American Academy of Child & Adolescent Psychiatry. 1996; 35(10):1338–43. https://doi.org/10.1097/00004583-199610000-00021 PMID: 8885588

110. Powers AD, Gleason ME, Oltmanns TF. Symptoms of borderline personality disorder predict interpersonal (but not independent) stressful life events in a community sample of older adults. Journal of Abnormal Psychology. 2013; 122(2):469. https://doi.org/10.1037/a0032363 PMID: 23713502

111. Price A, Mahler H, Hopwood C. Subjective Emptiness: A Clinically Significant Trans-diagnostic Psychopathology Construct. 2019;(pre-print). https://doi.org/10.31235/osf.io/f2x6r

112. Rebok F, Teti GL, Fantini AP, Cárdenas-Delgado C, Rojas SM, Derito MN, et al. Types of borderline personality disorder (BPD) in patients admitted for suicide-related behavior. Psychiatric quarterly. 2015; 86(1):49–60. https://doi.org/10.1007/s11126-014-9317-3 PMID: 25179870

113. Richman NE, Sokolove RL. The experience of aloneness, object representation, and evocative memory in borderline and neurotic patients. Psychoanalytic Psychology. 1992; 9(1):77. https://doi.org/10.1037/h0079323

114. Rippetoe PA, Alarcon RD, Walter-Ryan WG. Interactions between depression and borderline personality disorder. Psychopathology. 1986; 19(6):340–6. https://doi.org/10.1159/000284458 PMID: 3615789

115. Rogers JH, Widiger TA, Krupp A. Aspects of depression associated with borderline personality disorder. American Journal of Psychiatry. 1995; 152:268–70. https://doi.org/10.1176/ajp.152.2.268 PMID: 7840363

116. Sagan O. The loneliness of personality disorder: A phenomenological study. Mental Health and Social Inclusion. 2017; 21(4):213–21. https://doi.org/10.1108/MHSI-04-2017-0020

117. Sanislow CA, Grilo CM, McGlashan TH. Factor analysis of the DSM-III-R borderline personality disorder criteria in psychiatric inpatients. American Journal of Psychiatry. 2000; 157(10):1629–33. https://doi.org/10.1176/appi.ajp.157.10.1629 PMID: 11007717

118. Scheel CN, Schneid E-M, Tuescher O, Lieb K, Tuschen-Caffier B, Jacob GA. Effects of shame induction in borderline personality disorder. Cognitive Therapy and Research. 2013; 37(6):1160–8. https://doi.org/10.1007/s10608-013-9567-7

119. Silk KR, Lee S, Hill EM, Lohr NE. Borderline personality disorder symptoms and severity of sexual abuse. American Journal of Psychiatry. 1995; 152:1059–64. https://doi.org/10.1176/ajp.152.7.1059 PMID: 7793443

120. Skinstad AH, Troland K, Mortensen JK. Rorschach responses in Borderline Personality Disorder with alcohol dependence. European Journal of Psychological Assessment. 1999; 15(2):133. https://doi.org/10.1027//1015-5759.15.2.133

121. Soloff PH, Lynch KG, Kelly TM. Childhood abuse as a risk factor for suicidal behavior in borderline personality disorder. Journal of Personality Disorders. 2002; 16(3):201–14. https://doi.org/10.1521/pedi.16.3.201.22542 PMID: 12136678

122. Soloff PH, Lynch KG, Kelly TM, Malone KM, Mann JJ. Characteristics of suicide attempts of patients with major depressive episode and borderline personality disorder: A comparative study. American Journal of Psychiatry. 2000; 157(4):601–8. https://doi.org/10.1176/appi.ajp.157.4.601 PMID: 10739420

123. Southward MW, Cheavens JS. Identifying core deficits in a dimensional model of Borderline Personality Disorder features: A network analysis. Clinical Psychological Science. 2018; 6(5):685–703. https://doi.org/10.1177/2167702618769560 PMID: 30854263

124. Speranza M, Pham-Scottez A, Revah-Levy A, Barbe RP, Perez-Diaz F, Birmaher B, et al. Factor structure of borderline personality disorder symptomatology in adolescents. The Canadian Journal of Psychiatry. 2012; 57(4):230–7. https://doi.org/10.1177/070674371205700406 PMID: 22480588

125. Stanley B, Gameroff MJ, Michalsen V, Mann JJ. Are suicide attempters who self-mutilate a unique population? American Journal of Psychiatry. 2001; 158(3):427–32. https://doi.org/10.1176/appi.ajp.158.3.427 PMID: 11229984

126. Stepp SD, Pilkonis PA, Yaggi KE, Morse JQ, Feske U. Interpersonal and emotional experiences of social interactions in borderline personality disorder. The Journal of Nervous Mental Disease. 2009; 197(7):484. https://doi.org/10.1097/NMD.0b013e3181aad2e7 PMID: 19597355

127. Stiglmayr C, Grathwol T, Linehan M, Ihorst G, Fahrenberg J, Bohus M. Aversive tension in patients with borderline personality disorder: a computer-based controlled field study. Acta Psychiatrica Scandinavica. 2005; 111(5):372–9. https://doi.org/10.1111/j.1600-0447.2004.00466.x PMID: 15819731

128. Taylor J, Reeves M. Structure of borderline personality disorder symptoms in a nonclinical sample. Journal of Clinical Psychology. 2007; 63(9):805–16. https://doi.org/10.1002/jclp.20398 PMID: 17674400

129. Taylor S, Goritsas E. Dimensions of identity diffusion. Journal of Personality Disorders. 1994; 8 (3):229–39.

130. Thome J, Liebke L, Bungert M, Schmahl C, Domes G, Bohus M, et al. Confidence in facial emotion recognition in borderline personality disorder. Personality Disorders: Theory, Research, and Treatment. 2016; 7(2):159–68. https://doi.org/10.1037/t71047-000

131. Trull TJ, Widiger TA. The relationship between borderline personality disorder criteria and dysthymia symptoms. Journal of Psychopathology and Behavioral Assessment. 1991; 13(2):91–105. https://doi.org/10.1007/BF00961425

132. Vardy Y, Day NJ, Grenyer BF. Development and validation of an experience of time alone scale for borderline personality disorder. PloS One. 2019; 14(5):1–21. https://doi.org/10.1371/journal.pone.0217350 PMID: 31120954

133. Verardi S, Nicastro R, McQuillan A, Keizer I, Rossier J. The personality profile of borderline personality disordered patients using the five-factor model of personality. International Journal of Clinical Health Psychology. 2008; 8(2). https://doi.org/10.1016/j.biopsych.2009.07.017 PMID: 19748081

134. Verkes RJ, Van der Mast RC, Kerkhof AJ, Fekkes D, Hengeveld MW, Tuyl JP, et al. Platelet serotonin, monoamine oxidase activity, and [3H] paroxetine binding related to impulsive suicide attempts and borderline personality disorder. Biological Psychiatry. 1998; 43(10):740–6. https://doi.org/10.1016/s0006-3223(97)00317-x PMID: 9606528

135. Villeneuve E, Lemelin S. Open-label study of atypical neuroleptic quetiapine for treatment of borderline personality disorder: Impulsivity as main target. The Journal of Clinical Psychiatry. 2005; 66(10):1298–303. https://doi.org/10.4088/jcp.v66n1013 PMID: 16259544

136. Wedig MM, Frankenburg FR, Reich DB, Fitzmaurice G, Zanarini MC. Predictors of suicide threats in patients with borderline personality disorder over 16 years of prospective follow-up. Psychiatry Research. 2013; 208(3):252–6. https://doi.org/10.1016/j.psychres.2013.05.009 PMID: 23747235

137. Westen D, Moses J, Silk KR, Lohr NE, Cohen R, Segal H. Quality of depressive experience in borderline personality disorder and major depression: When depression is not just depression. Journal of Personality Disorders. 1992; 6(4):392–93. https://doi.org/10.1521/pedi.1992.6.4.382

138. Yen S, Johnson J, Costello E, Simpson EB. A 5-day dialectical behavior therapy partial hospital program for women with borderline personality disorder: predictors of outcome from a 3-month follow-up study. Journal of Psychiatric Practice. 2009; 15(3):173–82. https://doi.org/10.1097/01.pra.0000351877.45260.70 PMID: 19461390

139. Zanarini MC, Frankenburg FR, DeLuca CJ, Hennen J, Khera GS, Gunderson JG. The pain of being borderline: dysphoric states specific to borderline personality disorder. Harvard Review of Psychiatry. 1998; 6(4):201–7. https://doi.org/10.3109/10673229809000330 PMID: 10370445

140. Zanarini MC, Frankenburg FR, Reich DB, Fitzmaurice GM. Fluidity of the subsyndromal phenomenology of borderline personality disorder over 16 years of prospective follow-up. American Journal of Psychiatry. 2016; 173(7):688–94. https://doi.org/10.1176/appi.ajp.2015.15081045 PMID: 26869248

141. Zanarini MC, Frankenburg FR, Reich DB, Silk KR, Hudson JI, McSweeney LB. The subsyndromal phenomenology of borderline personality disorder: a 10-year follow-up study. American Journal of Psychiatry. 2007; 164(6):929–35. https://doi.org/10.1176/ajp.2007.164.6.929 PMID: 17541053

142. Orbach I, Mikulincer M, Sirota P, Gilboa-Schechtman E. Mental pain: A multidimensional operationalization and definition. Suicide and Life-Threatening Behavior. 2003; 33(3):219–30. https://doi.org/10.1521/suli.33.3.219.23219 PMID: 14582833

143. Masterson JF. Psychotherapy of the borderline adult: A developmental approach. New York: Brunner Mazel; 1976.

144. Masterson JF, Rinsley DB. The borderline syndrome: The role of the mother in the genesis and psychic structure of the borderline personality. International Journal of Psychoanalysis. 1975; 56:163–77. PMID: 1158575

145. Gunderson JG, Phillips KA. A current view of the interface between borderline personality disorder and depression. The American Journal of Psychiatry. 1991; 148(8):967–75. https://doi.org/10.1176/ajp.148.8.967 PMID: 1823531

146. Silk KR. The quality of depression in borderline personality disorder and the diagnostic process. Journal of Personality Disorders. 2010; 24(1):25–37. https://doi.org/10.1521/pedi.2010.24.1.25 PMID: 20205497

147. Grant BF, Chou SP, Goldstein RB, Huang B, Stinson FS, Saha TD, et al. Prevalence, correlates, disability and comorbidity of DSM-IV borderline personality disorder: Results from the wave 2 national epidemiologic survey on alcohol and related conditions. Journal of Clinical Psychiatry. 2008; 69(4):533–45. https://doi.org/10.4088/jcp.v69n0404 PMID: 18426259

148. Leichsenring F. Quality of depressive experience in borderline personality disorders: Differences between patients with borderline personality disorder and patients with higher levels of personality organisation. Bulletin of the Menninger Clinic. 2004; 68(1):9–22. https://doi.org/10.1521/bumc.68.1.9.27729 PMID: 15113031

149. Rhodes JE, Hackney SJ, Smith JA. Emptiness, engulfment, and life struggle: an interpretative phenomenological analysis of chronic depression. Journal of Constructivist Psychology. 2018; 0(0):1–18. https://doi.org/10.1080/10720537.2018.1515046

150. Kleiman EM, Beaver JK. A meaningful life is worth living: Meaning in life as a suicide resiliency factor. Psychiatry Research. 2013; 210(3):934–9. https://doi.org/10.1016/j.psychres.2013.08.002 PMID: 23978733

151. Kleiman EM, Adams LM, Kashdan TB, Riskind JH. Grateful individuals are not suicidal: Buffering risks associated with hopelessness and depressive symptoms. Personality and Individual Differences. 2013; 55(5):595–9. https://doi.org/10.1016/j.paid.2013.05.002

152. Bateman A, Fonagy P. Mentalization based treatment for borderline personality disorder. World Psychiatry. 2010; 9(1):11–5. https://doi.org/10.1002/j.2051-5545.2010.tb00255.x PMID: 20148147

153. Levy KN, Clarkin JF, Yeomans FE, Scott LN, Wasserman RH, Kernberg OF. The mechanisms of change in the treatment of borderline personality disorder with transference focused psychotherapy. Journal of Clinical Psychology. 2006; 62(4):481–501. https://doi.org/10.1002/jclp.20239 PMID: 16470612

154. Zanarini MC, Gunderson JG, Frankenburg FR, Chauncey DL. The revised diagnostic interview for borderlines: Discriminating BPD from other axis II disorders. Journal of Personality Disorders. 1989; 3(1):10–8.

155. Zanarini MC, Vujanovic AA, Parachini EA, Boulanger BS, Frankenburg FR, Hennen J. A screening measure for BPD: The McLean screening instrument for borderline personality disorder (MSI-BPD). Journal of Personality Disorders. 2003; 17(6):568–73. https://doi.org/10.1521/pedi.17.6.568.25355 PMID: 14744082

156. Pfohl B, Blum N, Zimmerman M. Structured Interview for DSM-IV Personality Washington, USA: American Psychiatric Press; 1997.

7.2 Appendix 2 – Study One PROSPERO Registration

PROSPERO
International prospective register of systematic reviews

NHS
National Institute for Health Research

UNIVERSITY of York
Centre for Reviews and Dissemination

Systematic review

1. * Review title.

Give the working title of the review, for example the one used for obtaining funding. Ideally the title should state succinctly the interventions or exposures being reviewed and the associated health or social problems. Where appropriate, the title should use the PI(E)COS structure to contain information on the Participants, Intervention (or Exposure) and Comparison groups, the Outcomes to be measured and Study designs to be included.

Measuring the shadows: a systematic review of chronic emptiness in borderline personality disorder

2. Original language title.

For reviews in languages other than English, this field should be used to enter the title in the language of the review. This will be displayed together with the English language title.

3. * Anticipated or actual start date.

Give the date when the systematic review commenced, or is expected to commence.

15/01/2018

4. * Anticipated completion date.

Give the date by which the review is expected to be completed.

01/07/2020

5. * Stage of review at time of this submission.

Indicate the stage of progress of the review by ticking the relevant Started and Completed boxes. Additional information may be added in the free text box provided.
Please note: Reviews that have progressed beyond the point of completing data extraction at the time of initial registration are not eligible for inclusion in PROSPERO. Should evidence of incorrect status and/or completion date being supplied at the time of submission come to light, the content of the PROSPERO record will be removed leaving only the title and named contact details and a statement that inaccuracies in the stage of the review date had been identified.
This field should be updated when any amendments are made to a published record and on completion and publication of the review. If this field was pre-populated from the initial screening questions then you are not able to edit it until the record is published.

The review has not yet started: No

Review stage	Started	Completed
Preliminary searches	Yes	Yes
Piloting of the study selection process	Yes	Yes
Formal screening of search results against eligibility criteria	Yes	Yes
Data extraction	Yes	Yes
Risk of bias (quality) assessment	Yes	Yes
Data analysis	Yes	Yes

Provide any other relevant information about the stage of the review here (e.g. Funded proposal, protocol not yet finalised).

15/07/2020: Published on 1/7/2020

15/07/2020: Published on 1/7/2020

6. * Named contact.

The named contact acts as the guarantor for the accuracy of the information presented in the register record.

Professor Brin Grenyer

Email salutation (e.g. "Dr Smith" or "Joanne") for correspondence:

Professor Grenyer

7. * Named contact email.

Give the electronic mail address of the named contact.

grenyer@uow.edu.au

8. Named contact address

Give the full postal address for the named contact.

Northfields Psychology Clinic, University of Wollongong, Northfields Ave Wollongong NSW 2522 Australia

9. Named contact phone number.

Give the telephone number for the named contact, including international dialling code.

10. * Organisational affiliation of the review.

Full title of the organisational affiliations for this review and website address if available. This field may be completed as 'None' if the review is not affiliated to any organisation.

School of Psychology University of Wollongong, Illawarra Health and Medical Research Institute

Organisation web address:

www.uow.edu.au

11. * Review team members and their organisational affiliations.

Give the personal details and the organisational affiliations of each member of the review team. Affiliation refers to groups or organisations to which review team members belong. **NOTE: email and country are now mandatory fields for each person.**

Ms Caitlin Miller, School of Psychology, University of Wollongong
Dr Michelle Townsend, School of Psychology, University of Wollongong
Professor Brin Grenyer, School of Psychology, University of Wollongong
Mr Nicholas Day, School of Psychology, University of Wollongong

12. * Funding sources/sponsors.

Give details of the individuals, organizations, groups or other legal entities who take responsibility for initiating, managing, sponsoring and/or financing the review. Include any unique identification numbers assigned to the review by the individuals or bodies listed.

This research is supported by a scholarship awarded to CEM by the School of Psychology, University of Wollongong and Project Air Strategy that acknowledges the support of the NSW Ministry of Health. The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript

Grant number(s)

13. * Conflicts of interest.

List any conditions that could lead to actual or perceived undue influence on judgements concerning the main topic investigated in the review.

None

14. Collaborators.

Give the name and affiliation of any individuals or organisations who are working on the review but who are not listed as review team members. **NOTE: email and country are now mandatory fields for each person.**

15. * Review question.

State the question(s) to be addressed by the review, clearly and precisely. Review questions may be specific or broad. It may be appropriate to break very broad questions down into a series of related more specific questions. Questions may be framed or refined using PI(E)COS where relevant.

Borderline personality disorder (BPD) is a complex mental disorder characterised by pervasive instability of self-concept, emotion, and behaviour (American Psychiatric Association, 2013). The disorder is associated with high levels of distress and dysfunction and extensive health service use (Gunderson, 2011; Meuldijk et al., 2017). Current diagnostic guidelines categorise BPD into nine criteria. Overt criteria such as impulsivity or self-harm have been studied extensively, however literature on chronic feelings of emptiness criterion is less cohesive. This review attempts to provide an understanding of the symptom. Furthermore, the review aims to capture related concepts to emptiness in BPD such as isolation or hopelessness in order to gain a depth of understanding.

16. * Searches.

State the sources that will be searched. Give the search dates, and any restrictions (e.g. language or publication period). Do NOT enter the full search strategy (it may be provided as a link or attachment.)

Electronic databases will be used to conduct searches, including PsycINFO, Scopus, PubMed, and Web of Science. Identical search terms will be used for all databases; (Empt* or isolat* or vacuum or dead or deadness or nothing* or void or swallowed or bored* or numb* or alien* or wooden* or hole or alone* or vague* or hopeless* or lonel*) AND (borderline personality disorder or BPD or emotionally unstable personality disorder). Results will not be limited by publication date but will be limited to peer-reviewed research.

17. URL to search strategy.

Give a link to a published pdf/word document detailing either the search strategy or an example of a search strategy for a specific database if available (including the keywords that will be used in the search strategies), or upload your search strategy.Do NOT provide links to your search results.

Alternatively, upload your search strategy to CRD in pdf format. Please note that by doing so you are consenting to the file being made publicly accessible.

Yes I give permission for this file to be made publicly available

18. * Condition or domain being studied.

Give a short description of the disease, condition or healthcare domain being studied. This could include health and wellbeing outcomes.

Borderline personality disorder, chronic feelings of emptiness and related terms (e.g. loneliness, isolation, hopelessness, numbness, deadness, boredom).

19. * Participants/population.

Give summary criteria for the participants or populations being studied by the review. The preferred format includes details of both inclusion and exclusion criteria.

Inclusion: People with features or diagnosis of borderline personality disorder, or community populations endorsing features of BPD

20. * Intervention(s), exposure(s).

Give full and clear descriptions or definitions of the nature of the interventions or the exposures to be reviewed.

nil

21. * Comparator(s)/control.

Where relevant, give details of the alternatives against which the main subject/topic of the review will be compared (e.g. another intervention or a non-exposed control group). The preferred format includes details of both inclusion and exclusion criteria.

nil

22. * Types of study to be included.

Give details of the types of study (study designs) eligible for inclusion in the review. If there are no restrictions on the types of study design eligible for inclusion, or certain study types are excluded, this should be stated. The preferred format includes details of both inclusion and exclusion criteria.

Exclusion: peer reviewed studies without data (qualitative or quantitative), studies without focus on BPD or BPD symptoms.

23. Context.

Give summary details of the setting and other relevant characteristics which help define the inclusion or exclusion criteria.

Mental health studies, excluding anthropological or sociological studies.

24. * Main outcome(s).

Give the pre-specified main (most important) outcomes of the review, including details of how the outcome is defined and measured and when these measurement are made, if these are part of the review inclusion criteria.

This review aims to achieve a comprehensive overview of chronic feelings of emptiness in BPD, and identify key findings relating to emptiness.

* Measures of effect

Please specify the effect measure(s) for you main outcome(s) e.g. relative risks, odds ratios, risk difference, and/or 'number needed to treat.

Not applicable.

25. * Additional outcome(s).

List the pre-specified additional outcomes of the review, with a similar level of detail to that required for main outcomes. Where there are no additional outcomes please state 'None' or 'Not applicable' as appropriate to the review

This review also aims to distinguish if there is a difference between feelings of emptiness and related concepts such as hopelessness.

* Measures of effect

Please specify the effect measure(s) for you additional outcome(s) e.g. relative risks, odds ratios, risk difference, and/or 'number needed to treat.

Not applicable.

26. * Data extraction (selection and coding).

Describe how studies will be selected for inclusion. State what data will be extracted or obtained. State how this will be done and recorded.

1) Results of search strategies will be screened by two researchers to determine possible relevance, with inter-rater reliability considered and disagreements discussed until a consensus is achieved.

3) Quality checks will be conducted on all chosen articles

4) Data extraction from relevant articles will be conducted by one member of the review team, and this will be checked="checked" value="1" by a second member of the review team.

5) Quantitative findings will be presented in tabular form.

NB: in the event that two members of the review team are unable to agree, the third member will be called upon for advice and decision.

27. * Risk of bias (quality) assessment.

Describe the method of assessing risk of bias or quality assessment. State which characteristics of the studies will be assessed and any formal risk of bias tools that will be used.

The Mixed Methods Appraisal Tool (MMAT) will be used to assess quality of studies.

28. * Strategy for data synthesis.

Provide details of the planned synthesis including a rationale for the methods selected. This **must not be generic text** but should be **specific to your review** and describe how the proposed analysis will be applied to your data.

Tabular summary of quantitative data, narrative synthesis of qualitative data.

29. * Analysis of subgroups or subsets.

State any planned investigation of 'subgroups'. Be clear and specific about which type of study or participant will be included in each group or covariate investigated. State the planned analytic approach.

nil

30. * Type and method of review.

Select the type of review and the review method from the lists below. Select the health area(s) of interest for your review.

Type of review

Cost effectiveness
No

Diagnostic
No

Epidemiologic
No

Individual patient data (IPD) meta-analysis
No

Intervention
No

Meta-analysis
No

Methodology
No

Narrative synthesis
No

Network meta-analysis
No

Pre-clinical
No

Prevention
No

Prognostic

No

Prospective meta-analysis (PMA)
No

Review of reviews
No

Service delivery
No

Synthesis of qualitative studies
No

Systematic review
Yes

Other
No

Health area of the review

Alcohol/substance misuse/abuse
No

Blood and immune system
No

Cancer
No

Cardiovascular
No

Care of the elderly
No

Child health
No

Complementary therapies
No

COVID-19
No

Crime and justice
No

Dental
No

Digestive system
No

Ear, nose and throat
No

Education
No

Endocrine and metabolic disorders
No

Eye disorders
No

General interest
No

Genetics
No

Health inequalities/health equity

No

Infections and infestations
No

International development
No

Mental health and behavioural conditions
Yes

Musculoskeletal
No

Neurological
No

Nursing
No

Obstetrics and gynaecology
No

Oral health
No

Palliative care
No

Perioperative care
No

Physiotherapy
No

Pregnancy and childbirth
No

Public health (including social determinants of health)
No

Rehabilitation
No

Respiratory disorders
No

Service delivery
No

Skin disorders
No

Social care
No

Surgery
No

Tropical Medicine
No

Urological
No

Wounds, injuries and accidents
No

Violence and abuse
No

31. Language.

Select each language individually to add it to the list below, use the bin icon to remove any added in error.

There is not an English language summary

32. * Country.

Select the country in which the review is being carried out from the drop down list. For multi-national collaborations select all the countries involved.

Australia

33. Other registration details.

Give the name of any organisation where the systematic review title or protocol is registered (such as with The Campbell Collaboration, or The Joanna Briggs Institute) together with any unique identification number assigned. (N.B. Registration details for Cochrane protocols will be automatically entered). If extracted data will be stored and made available through a repository such as the Systematic Review Data Repository (SRDR), details and a link should be included here. If none, leave blank.

34. Reference and/or URL for published protocol.

Give the citation and link for the published protocol, if there is one

Give the link to the published protocol.

Alternatively, upload your published protocol to CRD in pdf format. Please note that by doing so you are consenting to the file being made publicly accessible.

Yes I give permission for this file to be made publicly available

Please note that the information required in the PROSPERO registration form must be completed in full even if access to a protocol is given.

35. Dissemination plans.

Give brief details of plans for communicating essential messages from the review to the appropriate audiences.

Do you intend to publish the review on completion?

Yes

36. Keywords.

Give words or phrases that best describe the review. Separate keywords with a semicolon or new line. Keywords will help users find the review in the Register (the words do not appear in the public record but are included in searches). Be as specific and precise as possible. Avoid acronyms and abbreviations unless these are in wide use.

borderline personality disorder; BPD; emptiness

37. Details of any existing review of the same topic by the same authors.

Give details of earlier versions of the systematic review if an update of an existing review is being registered, including full bibliographic reference if possible.

38. * Current review status.

Review status should be updated when the review is completed and when it is published. For newregistrations the review must be Ongoing.
Please provide anticipated publication date

Review_Completed_published

39. Any additional information.

Provide any other information the review team feel is relevant to the registration of the review.

40. Details of final report/publication(s) or preprints if available.

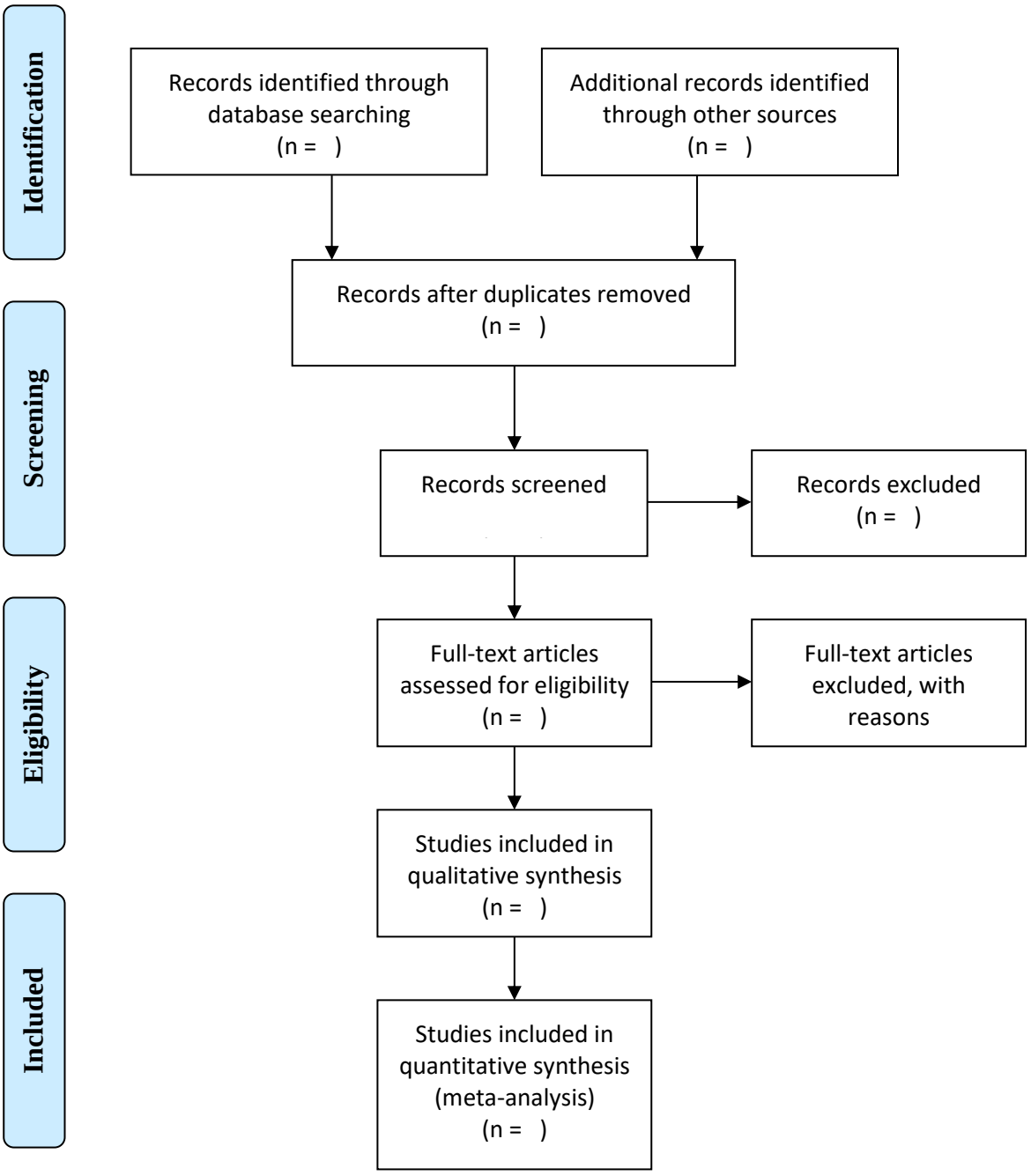
This field should be left empty until details of the completed review are available OR you have a link to a preprint.

Published in PloS One 1/7/2020

Give the link to the published review.

https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0233970

7.3 Appendix 3 – PRISMA Flowchart



Article below removed for copyright reasons, please refer to the citation (or see chapter 3):

Miller, C. E., Lewis, K. L., Huxley, E., Townsend, M. L., and Grenyer, B. F. S. (2018) A 1-year follow-up study of capacity to love and work: What components of borderline personality disorder most impair interpersonal and vocational functioning?. *Personality and Mental Health*, 12: 334– 344. https://doi.org/10.1002/pmh.1432.

7.5 Appendix 5 – Study Two Exploratory Mediation Models Tested

Model 1

Variables

Y	Follow-up days out of work
X	Intake identity disturbance
M1	Intake chronic emptiness
M2	Mood dysregulation
M3	Intake impulsivity
M4	Intake self-harm

Serial multiple mediator model with identity disturbance mediated by chronic emptiness, mood dysregulation, impulsivity and self-harm, R^2 = .11, F(3, 195) = 4.75, p = .000, direct effect non-significant c' = -.19, p = .318, total effect of the model non-significant, c = .148, p = .344.

Model 2

Variables

Y	Follow-up days out of work
X	Intake identity disturbance
M1	Intake chronic emptiness
M2	Intake impulsivity
M3	Intake self-harm

Serial multiple mediator model with identity disturbance mediated by chronic emptiness, impulsivity and self-harm, R^2 = .087, F(3, 195) = 4.61, p = .001, direct effect non-significant c' = -.23, p = .234, total effect of the model non-significant, c = .148, p = .344.

Model 3

Variables

Y	Follow-up days out of work
X	Intake identity disturbance
M1	Intake mood dysregulation
M2	Intake impulsivity

M3 Intake self-harm

Serial multiple mediator model with identity disturbance mediated by mood dysregulation, impulsivity and self-harm, R^2 = .10, F(3, 195) = 5.27, p = .000, direct effect non-significant c' = -.04, p = .811, total effect of the model non-significant, c = .148, p = .344.

Model 4

Variables

Y Follow-up days out of work

X Intake identity disturbance

M1 Intake impulsivity

M2 Intake self-harm

Serial multiple mediator model with identity disturbance mediated by impulsivity and self-harm, R^2 = .06, F(3, 195) = 4.06, p = .008, direct effect non-significant c' = .05 p = .771, total effect of the model non-significant, c = .148, p = .344.

Model 5

Variables

Y Follow-up days out of work

X Intake identity disturbance

M1 Intake impulsivity

M2 Intake mood dysregulation

Serial multiple mediator model with identity disturbance mediated by impulsivity and mood dysregulation, R^2 = .08, F(3, 195) = 5.70, p = .001, direct effect non-significant c' = -.11, p = .493, total effect of the model non-significant, c = .148, p = .344.

Model 6

Variables

Y Follow-up days out of work

X Intake identity disturbance

M1 Intake mood dysregulation

M2 Intake self-harm

Serial multiple mediator model with identity disturbance mediated by mood dysregulation and self-harm, R^2 = .05, F(3, 195) = 3.60, p = .015, direct effect non-significant c' = .06, p = .731, total effect of the model non-significant, c = .148, p = .344.

Model 7

Variables

Y	Follow-up days out of work
X	Intake self-harm
M1	Intake chronic emptiness
M2	Intake impulsivity

Serial multiple mediator model with self-harm mediated by chronic emptiness and impulsivity, R^2 = .11, F(3, 195) = 25.35, p = .000, direct effect significant c' = .56, p = .016, total effect of the model significant, c = .72, p = .001.

Model 8

Variables

Y	Follow-up days out of work
X	Intake impulsivity
M1	Intake chronic emptiness
M2	Intake self-harm

Serial multiple mediator model with impulsivity mediated by chronic emptiness and self-harm, R^2 = .15, F(3, 195) = 34.73, p = .000, direct effect significant c' = .39, p = .04, total effect of the model significant, c = .53, p = .003.

Note – X = X variable (independent/predictor), Y = Y variable (dependent), M1 – Mediator 1, M2 = Mediator 2, M3 = Mediator 3, M4 = Mediator 4

7.6 Appendix 6 – Study Three Ethical Approval

Caitlin Miller

From: irma-support@uow.edu.au
Sent: Wednesday, 5 December 2018 10:50 AM
To: Brin Grenyer; Kristy Pierce; Leigh.Lees@health.nsw.gov.au
Cc: Marianne Bourke; Nicholas Day; Annaleise Gray; Elizabeth Huxley; Kate Lewis; Ely Marceau; Denise Meuldijk; Caitlin Miller; Fiona Ng; Judy Pickard; Michelle Townsend; Brin Grenyer; rso-ethics@uow.edu.au
Subject: HREC Approval of Amendment to Application 2010/371

Dear Professor Grenyer,

I am pleased to advise that the amendment request submitted on 15/11/2018 to the application detailed below has been approved.

Ethics Number:	2010/371
Amendment Approval Date:	04/12/2018
Expiry Date:	08/12/2018
AuRed Number:	HREC/10/WGONG/119
Project Title:	Project Air Strategy for Emotion Regulation
Researchers:	Bourke Marianne; Day Nicholas; Gray Annaleise; Huxley Elizabeth; Lewis Kate; Marceau Ely; Meuldijk Denise; Miller Caitlin; Ng Fiona; Pickard Judith; Townsend Michelle; Grenyer Brin
Documents Approved:	• Ethics Amendment V1.3 22/11/18 • Response to Review 22/11/2018 • Consent V1.3 22/11/18 • PIS V1.3 22/11/18 • Script V1.3 22/11/18 • Interview Process V1.3 22/11/18 • Telephone Interview V1.2 15/11/18 • Survey Monkey Questions V1.2 15/11/18
Amendment Approved:	• Inclusion of a subsample of participants to be recontacted and interviewed for a further study

The HREC has reviewed the research proposal for compliance with the *National Statement on Ethical Conduct in Human Research* and approval of this project is conditional upon your continuing compliance with this document. Compliance is monitored through progress reports; the HREC may also undertake physical monitoring of research.

Please remember that in addition to submitting proposed changes to the project to the HREC prior to implementing them the HREC requires:

- Immediate report of serious or unexpected adverse effects on participants.
- Immediate report of unforeseen events that might affect the continued acceptability of the project.
- The submission of an annual progress report and a final report on completion of your project.

If you have any queries regarding the HREC review process or your ongoing approval please contact the Ethics Unit on 4221 3386 or email rso-ethics@uow.edu.au.

1

Yours sincerely,

Susan Thomas

Dr Susan Thomas,
Chair, UOW & ISLHD Health and Medical Human Research Ethics Committee

The University of Wollongong and Illawarra and Shoalhaven Local Health District Health and Medical HREC is constituted and functions in accordance with the NHMRC National Statement on Ethical Conduct in Human Research. The processes used by this HREC to review multi-centre research proposals have been certified by the National Health and Medical Research Council.

7.7 Appendix 7 – Study Three Semi-Structured Interview

1. In the past two weeks, how often have you felt chronically empty (1 = none of the time through 6 = all of the time)
2. Describe a typical experience of a time when you felt empty. Try to get as detailed as possible so I understand exactly how it felt for you and what you were thinking and feeling
3. Describe any times you've deliberately tried to feel empty
4. Are feelings of emptiness the same as feelings of loneliness?
5. For you, are feelings of emptiness different to feelings of depression?
6. Have feelings of emptiness ever manifested in impulsive behaviours (including self-harm)?
7. Do you think feelings of emptiness may be linked to your sense of identity?
8. If you had to describe emptiness as a colour, what colour would it be?
9. Can you think of a metaphor that describes how you've experienced feeling empty inside?
10. What do you do when you feel empty inside?
11. Tell me about any times and ways you've tried to avoid the experience of feeling empty

8. Supplementary Materials

8.1 PRISMA checklist for Study One

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	1
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	3-7
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	7
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	7
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	7
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	7
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	7
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	8
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	9

Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	9
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	7-8
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	9
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	9
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	9
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	N/A
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	10
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	10-37
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	10
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	10-37
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	38-49
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	S1
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	N/A
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	49-55

Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	55-56
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	57
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	Funding disclosure section

8.2 Study One Table 2.1

Table 2.1

Results of Quality Check Using MMAT Observational Descriptive and Qualitative Tool for Included Studies

MMAT quantitative studies

Authors, year	**Screening questions**		**4.1 Is the sampling strategy relevant to address the quantitative research question?**		**4.2 Is the sample representative of the population under study?**		**4.3 Are measurements appropriate (clear origin, validity known, standard instrument?)**			**4.4 Is there an acceptable response rate (>60%)?**	**Quality of study (range 0-8)**
	Are there clear research questions/ objectives ?	**Do the collected data address the research question ?**	**Is the source of sample relevant to the population under study?**	**Is there a standard procedure for sampling/ sample size is justified?**	**Are inclusion and exclusion criteria explained ?**	**Are reasons why eligible individuals chose not to participate explained?**	**Are the variables clearly defined and accurately measured?**	**Are measurements justified and appropriate for answering the research question?**	**Do the measurements reflect what they are supposed to measure?**		
Abela et al., 2003	Y	Y	Y	N	N	N	Y	Y	Y	Y	5
Amianto et al., 2011	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	7
Andreasson et al., 2016	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	8
Bach & Sellbom, 2016	Y	Y	Y	N	N	N	Y	Y	Y	Y	5
Becker et al., 2006	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Bell et al., 1988	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6

Benazzi, 2006	Y	Y	Y	N	N	N	Y	Y	Y	Y	5
Berk et al., 2007	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Bernheim et al., 2018	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Bhar et al., 2008	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Black et al., 2018	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Bohus et al., 2007	Y	Y	Y	N	N	N	Y	Y	Y	Y	5
Bohus et al., 2001	Y	Y	Y	N	N	N	Y	Y	Y	Y	5
Bornovalova et al., 2006	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Brickman et al., 2014	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Brown et al., 2004	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	7
Buchheim et al., 2008	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Chabrol et al., 2001	Y	Y	N	N	N	N	Y	Y	Y	Y	4
Chabrol et al., 2002	Y	Y	Y	N	N	N	Y	Y	Y	N	4
Chapman et al., 2005	Y	Y	N	N	Y	N	Y	Y	Y	Y	5
Choi-Kain et al., 2010	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Conte et al., 1980	Y	Y	Y	N	N	N	Y	Y	N	Y	4
Cottraux et al., 2009	Y	Y	Y	N	Y	N	Y	Y	Y	N	5
Ellison et al., 2016	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6

Espinosa et al., 2009	Y	Y	Y	N	N	N	Y	Y	Y	Y	5
Fertuck et al., 2016	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Flynn et al., 2017	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Fritsch et al., 2000	Y	Y	N	N	N	N	Y	Y	Y	Y	4
Garcia-Alandete et al., 2014	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Glenn & Klonsky, 2013	Y	Y	N	N	Y	Y	Y	Y	Y	Y	6
Goodman et al., 2013	Y	Y	Y	N	N	N	Y	Y	Y	N	4
Harford et al., 2019	Y	Y	Y	N	N	N	Y	Y	Y	Y	5
Hauschild et al., 2018	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Hengartner et al., 2014	Y	Y	N	N	Y	Y	Y	Y	Y	Y	6
Hoertel et al., 2014	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	7
Horesh et al., 2003	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Hulbert & Thomas, 2007	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
James et al., 1995	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Javaras et al., 2017	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Johansen et al., 2004	Y	Y	Y	N	N	N	Y	Y	Y	Y	5
Kerr et al., 2018	Y	Y	N	N	N	N	Y	Y	Y	Y	4

Klonsky, 2008	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Koons et al., 2001	Y	Y	Y	N	Y	Y	Y	Y	Y	N	6
Korner et al., 2008	N	N	-	-	-	-	-	-	-	-	0
Lenzenweger et al., 2012	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Leppänen et al., 2016	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Liebke et al., 2017	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Marco et al., 2014	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Marco et al., 2015	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	7
Marco et al., 2017	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
McGlashan, 1987	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
McQuillan et al., 2005	Y	Y	Y	N	Y	N	Y	Y	Y	Y	5
Meares et al., 2011	Y	Y	Y	N	Y	N	Y	N	N	Y	4
Miller et al., 2018	Y	Y	Y	N	N	N	Y	Y	Y	Y	5
Miskewicz et al., 2015	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Morgan et al., 2013	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Morton et al., 2012	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Mou et al., 2018	Y	Y	Y	N	N	N	N	N	N	N	1
Nicastro et al., 2016	Y	Y	Y	N	N	N	Y	Y	Y	Y	5

Nisenbaum et al., 2010	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Nurnberg et al., 1986	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Nurnberg et al., 1987	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Nurnberg et al., 1991	Y	Y	N	N	Y	N	Y	Y	Y	Y	5
Ohshima, 2001	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Oldham et al., 1996	Y	Y	Y	N	N	N	Y	N	Y	Y	4
Perez, et al., 2014	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Perroud et al., 2013	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Pinto et al., 1996	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Powers et al., 2013	Y	Y	N	Y	Y	N	Y	Y	Y	Y	6
Price et al., 2019	Y	Y	N	N	Y	N	Y	Y	Y	Y	5
Rebok et al., 2015	Y	Y	Y	N	Y	Y	N	N	N	Y	4
Richman & Sokolove, 1992	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	7
Rippetoe et al., 1986	Y	Y	Y	N	Y	N	Y	N	Y	Y	5
Rogers et al., 1995	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Sanislow et al., 2000	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Scheel et al., 2013	Y	Y	Y	N	N	N	Y	N	Y	Y	4

Silk et al., 1995	Y	Y	Y	N	Y	N	Y	N	N	Y	4
Skinstad et al., 1999	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Soloff et al., 2002	Y	Y	Y	N	Y	N	Y	Y	Y	N	5
Soloff et al., 2000	Y	Y	Y	N	Y	N	Y	Y	Y	N	5
Southward & Cheavens, 2018	Y	Y	N	N	Y	N	Y	Y	Y	Y	5
Speranza et al., 2012	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Stanley et al., 2001	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Stepp et al., 2009	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Stiglmayr et al., 2005	Y	Y	Y	N	Y	N	Y	Y	N	Y	5
Taylor & Reeves, 2007	Y	Y	N	N	Y	N	Y	Y	Y	Y	5
Taylor & Goritsas, 1994	Y	Y	N	N	Y	N	Y	Y	Y	Y	5
Thome et al., 2016	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Trull & Widiger, 1991	Y	Y	N	N	Y	N	Y	Y	N	Y	4
Verardi et al., 2008	Y	Y	Y	N	N	N	Y	Y	Y	Y	5
Vardy et al., 2019	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Verkes et al., 1998	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	7

Villeneuve & Lemelin, 2005	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	7
Wedig et al., 2013	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	7
Westen et al., 1992	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Yen et al., 2009	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Zanarini et al., 1998	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	7
Zanarini et al., 2016	Y	Y	Y	N	Y	N	Y	Y	Y	Y	6
Zanarini et al., 2007	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	7

MMAT qualitative studies

Authors (year)	**Screening questions**		**1.1 Are the sources of qualitative data relevant to address the research question?**		**1.2 Is the process for analysing qualitative data relevant to address the research question?**		**1.3 Is appropriate consideration given to how findings relate to the context e.g. the setting in which data were collected?**	**1.4 Is appropriate consideration given to how findings relate to researchers' influence e.g. through their interactions with participants?**	**Quality of study (range 0-6)**
	Are there clear research questions/ objectives?	**Do the collected data address the research question?**	**Is the selection of participants clear?**	**Are reasons why potential participants chose not to participate explained?**	**Is the method of data collection clear and the form of the data**	**Does the data analysis address the question?**			

				is clear?					
Ntshingila et al., 2016	Y	Y	Y	N	Y	Y	Y	N	4
Sagan, 2017	Y	Y	Y	N	Y	Y	N	N	3
Vardy et al., 2019	Y	Y	Y	N	Y	Y	N	N	3

8.3 Study One Table 2.4

Table 2.4

Characteristics of Included Studies

Source	Title	Aim	Participants	Measures	Key results regarding chronic emptiness or related term	Measurement of chronic emptiness or related term
Abela et al. (2003)	Cognitive vulnerability to depression in individuals with borderline personality disorder	Compare cognitive vulnerability to depression in individuals with comorbid BPD and MDD, individuals with MDD only and individuals with neither BPD or MDD.	Parents living in community with history of depressive episode, n = 141 (nNoBPD+NoMDD = 36, nMDD = 89, nBPD+MDD = 16). Median age= 41, 90% female, 84.3% Caucasian.	SCID-I, SCID-II, BDI, BHS, EASQ, DAS, SEQ, RSQ	Individuals with BPD and MDD experienced significantly higher scores of hopelessness compared to MDD only and HC. Individuals with comorbid BPD and MDD displayed significantly greater cognitive vulnerability to depression as measured by hopelessness, low self-esteem, dysfunctional attitudes, and rumination scales.	BHS
Amianto et al. (2011)	Supervised team management, with or without structured psychotherapy, in heavy users of a mental health service with borderline personality disorder: A two-year follow-up preliminary randomised study	Compare the efficacy of Supervised Team Management (STM) and STM plus Sequential Brief Adlerian Psychodynamic Psychotherapy (SB-APP) in BPD treatment.	Individuals engaged in outpatient services in Mental Health Centre in Italy with diagnosis of BPD, n = 35. Mean age = 39.5, 51.4% male. Inclusion criteria: Age 20-50, heavy use of mental health service in prior year, no severe comorbid Axis I disorder, no intellectual, developmental, or cognitive impairment which would impede understanding, no current substance use, no previous psychotherapy intervention.	SCID-I, SCID-II, TCI, SCL-90, STAXI, CGI, GAF, CGI-M, WAI-S	STM and SB-APP was more effective than STM at reducing core psychopathological characteristics including chronic feelings of emptiness. SB-APP may help address emptiness by promoting mentalisation skills, decreasing splitting defenses and increasing tolerance for ambivalence.	CGI-M
Andreasson et al. (2016)	Effectiveness of dialectical behaviour therapy versus collaborative assessment and	Compare effectiveness of DBT to Collaborative Assessment and Management of	Individuals meeting two or more BPD criteria with a recent suicide attempt, n = 108 (nDBT = 57, nCAMS = 51). Mean age = 31.7, 74% female. Inclusion criteria: Age 18-65, no	MINI, SCID-II, HDRS-17, presence of self-harm, ZAN-BPD, BDI-II,	No significant differences were found between SBT and CAMS for levels of hopelessness in individuals with two or more BPD criteria with a recent suicide attempt.	BHS

	management of suicidality treatment for reduction of self-harm in adults with borderline personality traits and disorder—a randomized observer-blinded clinical trial	Suicidality (CAMS) treatment in reducing self-harm for individuals with BPD symptomology.	current severe depression, BD, psychosis, anorexia nervosa, substance use, no intellectual, developmental, or cognitive impairment which would impede understanding.	BSI, BHS, RSE		
Bach and Sellbom (2016)	Continuity between DSM-5 Categorical Criteria and Traits Criteria for Borderline Personality Disorder	Examine associations between DSM-5 dichotomous criteria and DSM-5 Section III traits for BPD.	Outpatients from Danish psychiatric service meeting criteria for PD diagnosis, n = 101. Mean age = 29, 68% female.	SCID-II, PID-5	The symptom chronic feelings of emptiness was not significantly correlated with any Section III traits, and only weakly associated with Depressivity. The lack of associations may indicate chronic feelings of emptiness are captured by the personality functioning criteria of Section III conceptualisation.	SCID-II, PID-5
Becker et al. (2006)	Exploratory factors analysis of borderline personality disorder criteria in hospitalised adolescents	Explore factor structure of BPD in hospitalised adolescents meeting criteria for DSM-III-R BPD.	Inpatients at the Adolescent Inpatient Unit at Yale Psychiatric Institute meeting criteria for BPD, n = 123. Mean age = 15.9, 54% male.	SADS, PDE	A four factor solution accounted for 67% of variance. Factor 1 included suicidal threats or gestures and emptiness or boredom. This factor may represent two aspects of dysregulation: the psychological process (emptiness) and maladaptive attempts to relieve tension of this process (suicidal behaviours).	PDE
Bell et al. (1988)	Do object relations deficits distinguish BPD from other diagnostic groups?	Use the Bell Object Relations (OR) Inventory to determine if there is a pattern of OR deficits for individuals with BPD, cross validate this OR profile with a second sample of BPD and compare BPD subjects with other diagnostic samples on OR.	Sample 1: Inpatients at Veterans Administration Medical Centre meeting criteria for BPD diagnosis, n = 44. Mean age = 37.7, 93% male. Sample 2 (cross validation sample): Outpatients meeting criteria for BPD but not any Axis 1 diagnoses, n = 24. Mean age = 30.8, 92% female. Sample 3 (other diagnostic group): Inpatients meeting criteria for schizophrenia, major affective disorder, or schizo-affective disorders but no diagnosis of BPD, n = 82. Mean age = 33, 89% male.	SADS, RDC, New Haven Schizophrenia Index, International Pilot Study for Schizophrenia criteria, Feighner criteria, BORRTI	Individuals with BPD (either inpatient or outpatient) were most identifiable by elevated scores on the Alienation subscale of Bell OR Inventory. Based on only Alienation scores, individuals with BPD could be distinguished from other diagnostic groups with 77-82% predictive accuracy. The internal experience of alienation, lack of intimacy, and loss of trust in interpersonal relations is a common feature of BPD.	BORRTI

Benazzi (2006)	Borderline personality - bipolar spectrum relationship	Identify which criteria of BPD are related to Bipolar II.	Outpatients with diagnoses of Bipolar II or MDD (in remission) who were further assessed for BPD traits, n = 209. nBD-II = 138, mean age = 39, 77% female. nMDD = 71, mean age = 39, 61% female.	SCID-CV, SCID-II	BPD traits were more common in individuals diagnosed with Bipolar II. Factor analysis of BPD traits found two factors. The first 'affective instability' factor included unstable mood, identity and interpersonal relationships, chronic emptiness, and feelings of anger.	SCID-II
Berk et al. (2007)	Characteristics of recent suicide attempters with and without borderline personality disorder	Identify pathology associated with suicide attempts for individuals with BPD and compare to those with a recent suicide attempt without a BPD diagnosis.	Individuals presenting to hospital due to suicide attempt, n = 180 (nBPD = 65, nNoBPD= 115). Mean age = 34, 57% female, 63% African American. Inclusion criteria: Age 16+, no intellectual, developmental, or cognitive impairment which would impede understanding.	SCID-I, SCID-II, GAF, HAM-D, SSI, SIS, Lethality Scale, BDI-II, BHS, SPSI-R, Psychiatric History Form	Suicide attempters with BPD had higher severity of hopelessness compared to those without BPD.	BHS
Bernheim et al. (2018)	Change of attachment characteristics during dialectic behavioural therapy for borderline patients	Determine if attachment characteristics for individuals with BPD change following DBT	Individuals with BPD and healthy controls, n = 52 (nBPD = 26, nHC = 26). Inclusion criteria: No intellectual, developmental or cognitive impairment which would impede understanding, no psychosis.	AAP, ASQ, SCID-II, BPI, MWT-B	Individuals with BPD demonstrated more traumatic-dysregulating markers in AAP narratives in response to monadic pictures which may induce feelings of loneliness.	AAP
Bhar et al. (2008)	Dysfunctional beliefs and psychopathology in borderline personality disorder	Examine factor structure of PBQ-BPD in individuals with BPD, understand how factors of PBQ-BPD relate to psychopathology.	Outpatients, inpatients and research participants with diagnosis of BPD, n = 184. Mean age = 33.1, 75.4% female, 55.2% Caucasian. Inclusion criteria: Age 18+, no psychosis.	PBQ-BPD, BDI, SSI, BHS, SCID-I, SCID-II, DIPD-IV	The 'interpersonal distrust' factor of PBQ-BPD correlated with hopelessness, depression, and suicide ideation. The 'dependency' factor was correlated with depression and hopelessness.	BHS
Black et al. (2018)	STEPPS treatment programme for borderline personality disorder: Which scale items improve? An item-level analysis	Determine which items of BEST and ZAN-BPD improve during STEPPS treatment.	Participants in an RCT evaluating STEPPS treatment with diagnosis of BPD and participants in the Iowa correctional system completing STEPPS treatment, n = 193. 81.9% female. No intellectual, developmental, or cognitive impairment which would impede understanding, no psychosis, no	SCID-I, SCID-II, BEST, ZAN-BPD	Chronic feelings of emptiness significantly improved following STEPPS treatment.	ZAN-BPD, BEST

			substance use disorder			
Bohus et al. (2007)	Psychometric properties of the borderline symptom list (BSL)	Summarise validity, reliability and sensitivity to change for BSL.	Participants from six different samples; inpatient and outpatient females with BPD, male patients with BPD, HCs, participants with other mental disorders, female patients with BPD in inpatient DBT treatment, n = 930. Minimum 53.7% female, 30.4% unreported gender.	BSL, IPDE, MINI, BDI, HAM-D, STAI, STAXI, DES, SCL-90-R	Factor analysis of BSL showed a seven factor solution including a subscale of loneliness.	BSL
Bohus et al. (2001)	Development of the Borderline Symptom List	Develop a self-assessment scale to quantify specific experiences of people with BPD.	Participants with a diagnosis of BPD, n = 308. Mean age = 30.3, 100% women.	99 item early version of BSL	The fifth factor of the symptom list included experiences of social isolation. Items in this factor included 'I believed that nobody understood me', 'I felt isolated from others', 'I felt abandoned by others'	BSL
Bornovalova et al. (2006)	Temperamental and environmental risk factors for borderline personality disorder among inner-city substance users in residential treatment	Understand temperamental and environmental factors uniquely associated with BPD.	Inpatients in drug and alcohol abuse treatment centre, n = 93. Mean age = 41.5, 56% male, 92.5% African American.	Demographics, MPQ-BF, CTQ-SF, SCID-II.	Results indicate that diagnosis of BPD was associated with several interpersonal factors of temperament including higher rates of alienation.	MPQ-BF
Brickman et al. (2014)	The relationships between non-suicidal self-injury and borderline personality disorder symptoms in a college sample	Understand relationship between BPD factors and symptoms and non-suicidal self-injury in a college sample.	Undergraduate students with and without history of NSSI, n= 724. Mean age = 21.2, 61.2% female, 59.3% Caucasian.	FAFSI, MSI-BPD	Endorsement of disturbed relatedness (chronic emptiness, identity disturbance) was independently associated with history of NSSI. Feelings of chronic emptiness may precede NSSI and may act as motivation to engage in NSSI behaviours in young adults.	MSI-BPD

Brown et al. (2004)	An open clinical trial of cognitive therapy for borderline personality disorder	Identify if cognitive therapy alters risk factors for suicide in clients with BPD.	Individuals reporting suicide ideation or self-harm behaviours in past two months meeting criteria for PD, n = 32. Mean age = 29, 88% female, 72% Caucasian. Inclusion criteria: No psychosis, no intellectual, developmental, or cognitive impairment which would impede understanding.	SCID-I, SCID-II, SSI, HRSD, BDI-II, BHS, PHI, PBQ	Individuals with BPD who receive cognitive therapy experienced a decrease in levels of hopelessness at the end of treatment which was maintained at 18 months follow-up.	BHS
Buchheim et al. (2008)	Neural correlates of attachment trauma in borderline personality disorder: A functional magnetic resonance imaging study	Analyse neural activation patterns of attachment trauma for individuals with BPD, investigating response to stories associated with loneliness and abandonment in the AAP.	Inpatients with diagnosis of BPD and control participants, n= 28 (nBPD = 11, nControl = 17). Mean age = 28.1, 100% female. Inclusion criteria: No serious medical or neurological illnesses (BP, PTSD, DD), no current depressive episode, substance dependence, left-handedness, metal in body, or language difficulties.	SCID-I, SCID-II, DES, BIS, AAP fMRI	Neural differences were found between groups for dyadic pictures, with BPD group showing higher activation of right superior temporal sulcus and lower activation of right parahippocampal gyrus compared to controls. This provides support for the existence of a neural mechanism related to intolerance of aloneness in BPD.	AAP
Chabrol et al. (2001)	Symptomatology of DSM-IV borderline personality disorder in a non-clinical sample of adolescents: Study of 35 borderline cases	Examine symptoms of BPD in a non-clinical adolescent population.	Adolescents willing to complete a personality disorder interview, n = 107. Mean age = 16.7, 68.2% female.	DIB-R, MINI	Chronic feelings of emptiness were experienced by 57.1% of the sample.	DIB-R
Chabrol et al. (2002)	Factor analyses of the DIB-R in adolescents	Examine factor structure of DIB-R in adolescent population.	High school students, n = 118. Mean age = 16.7, 66.9% female.	DIB-R	The first factor of DIB-R, explaining 21% of variance, included painful affect and defenses. Items included loneliness/emptiness, helplessness/hopelessness, depression, anxiety, odd thinking/unusual perceptive experiences, quasi-psychotic experiences.	DIB-R
Chapman et al. (2005)	Factors associated with suicide attempts in female inmates: The hegemony of hopelessness	Examine associations between risk and protective factors with suicide attempts in female inmates.	Female inmates, n = 105. Mean age = 33.9, 100% female, 71.4% Caucasian. No current psychosis or serious reading difficulties.	Demographics, LPC-2, SCID-II, TAAD, BDI-II, BHS, CTQ, RFL, COPE	Hopelessness may mediate the relationship between risk factors (including BPD) and suicide attempts.	BHS

Choi-Kain et al. (2010)	A longitudinal study of the 10-year course of interpersonal features in borderline personality disorder	Determine time to remission of interpersonal BPD symptoms over ten years of follow-up.	Inpatients at McLean Hospital meeting criteria for BPD or another PD, n = 309 (nBPD = 249, nOtherPD = 60). Mean age = 27, 77.1% female, 87% Caucasian. No historical or current schizophrenia, schizoaffective or BP, no intellectual, developmental, or cognitive impairment which would impede understanding (IQ < 70), no organic disorders which could cause psychiatric symptoms, no language difficulties.	SCID-I, DIB-R, DIPD-R	Most interpersonal symptoms of BPD (including intolerance of aloneness) remit significantly over time. The symptom 'affective consequences when alone' declined less substantially over ten years than most other symptoms and was the last interpersonal feature of BPD to remit.	DIB-R, DIPD-R
Conte et al. (1980)	A self-report borderline scale: Discriminative validity and preliminary norms	Develop a self-report measure of BPD and report on psychometric properties.	Participants from four samples, n = 141. HC (n = 50, mean age = 33), outpatients with MDD (n = 36, mean age = 35), outpatients with BPD (n = 35, mean age = 33), and inpatients with Schizophrenia (n = 20, mean age = 32).	BSI	Items related to feelings of chronic emptiness discriminated the BPD group from all other groups.	BSI
Cottraux et al. (2009)	Cognitive therapy versus Rogerian supportive therapy in borderline personality disorder	Compare cognitive therapy to Rogerian supportive therapy over one year for individuals with BPD.	Outpatients with diagnosis of BPD, n = 65. Mean age = 33.5, 76.9% female. Inclusion criteria: Age 18-60, no psychosis, no substance use disorder, no antisocial behaviours.	MINI, DIB-R, CGI, HDRS, BDI, BHS, BAI, YSQ-II, IVE, SHBCL, TRES, SAS	Hopelessness improved more in cognitive therapy compared to Rogerian supportive therapy.	BHS
Ellison et al. (2016)	The clinical significance of single features of borderline personality disorder: Anger, affective instability, impulsivity, and chronic emptiness in psychiatric outpatients	Understand which DSM-5 BPD criteria are associated with psychosocial morbidity in outpatients,	Individuals presenting to Rhode Island Hospital for outpatient psychiatric care reporting either no BPD symptoms, affective instability, emptiness, or impulsivity symptoms, n = 1870 (nNoBPD= 1387, nImpulsivity= 114, nAffectiveInstability= 86, nEmptiness= 170, nAngerOnly= 113). Mean age = 38, 60% female, 92% Caucasian. Inclusion criteria: Age 18+, no intellectual, developmental or cognitive impairment which would impede	SIDP-IV, SCID-I, GAF, items from SADS (current suicidality, current social function, prior psychiatric hospitalisations, history of suicide attempts)	Participants experiencing one BPD symptom had higher rates of comorbid mood disorder and lower functioning compared to participants without BPD symptoms. Impulsivity and emptiness groups had poorer work function and emptiness and anger groups had lower social function than no BPD group. Emptiness group had poorer psychosocial function compared to group without BPD criteria on all measures,	SIDP-IV

			understanding, no difficulty communicating in English.			
Espinosa et al. (2009)	Risk and suicide lethality in patients with borderline personality disorder in a psychiatric hospital	Assess suicidal risk and lethality in individuals with BPD,	Individuals with BPD who presented to hospital with suicidal ideation or following suicide attempt, n = 15. Mean age = 29.5, 94% female.	SCID-II, SIS, BHS, DSQ, RRS	Almost half of the sample of individuals with BPD endorsed severe hopelessness after presenting to hospital for suicide attempt or ideation.	BHS
Fertuck et al. (2016)	The specificity of mental pain in borderline personality disorder compared to depressive disorders and healthy controls	Clarify the differences in mental pain between a BPD group, a depressed group, and healthy controls. Identify subtypes of mental pain common to each group,	Individuals involved in ongoing hospital clinical research meeting diagnosis of BPD or DD or recruited through community sampling, n= 110 (nBPD= 57, nDD= 22, nHC = 31). Mean age = 31, 75% female, 44% Caucasian. Inclusion criteria: Age 18-55, BPD and DD groups: no history of psychotic or neurological disorder, no other medical or psychological condition. HC group: no current or past psychological disorder.	SCID-I, SCID-II, OMPP, BDI, HAM-D	BPD group had significantly higher depression and hopelessness, BPD and DD groups had significantly higher ratings of emptiness compared to HC.	SCID II, OMPP
Flynn et al. (2017)	Standard 12 month dialectical behaviour therapy for adults with borderline personality disorder in a public community mental health setting	Evaluate the use of DBT for BPD in community mental health and determine outcomes following DBT.	Outpatients with BPD seeking community mental health treatment, n = 71. Mean age = 40, 85.9% female.	BSL-23, BAI, BHS, BSS, BDI-II, WHOQOL-BREF	DBT was associated with significant reduction in hopelessness.	BHS
Fritsch et al. (2000)	Personality characteristics of adolescent suicide attempters	Examine personality disorder symptoms and their relationship to hopelessness in adolescents with a suicide attempt.	Inpatient adolescents who had attempted suicide, n = 137. Mean age = 15.1, 80.3% female, 76% Caucasian. Inclusion criteria: Age 13-18.	MAPI, DIB-R, HSC	Individuals with higher scores of hopelessness scored higher on Inhibited and Sensitive scales of MAPI and more dysfunctional scores on Affect Regulation scale of DIB-R. Adolescents with high hopelessness had a negative sense of self in most factors of personality function.	HSC

García-Alandete et al. (2014)	Predicting role of the meaning in life on depression, hopelessness, and suicide risk among borderline personality disorder patients	Understand the relationship between meaning in life and depression, hopelessness, and suicidality in a BPD sample.	Individuals from public mental health service meeting criteria for BPD diagnosis, n = 80. Mean age= 32, 93% female, 100% Caucasian. Inclusion criteria: Age 16-60, no psychotic disorder, no intellectual, developmental or cognitive impairment which would impede understanding, no difficulty communicating in Spanish.	PIL-10, BDI-II, BHS, SRS, SCID-II, SCID-I	Meaning in life was a significant negative predictor of depression, hopelessness, and suicide risk.	SCID II
Glenn and Klonsky (2013)	Nonsuicidal self-injury disorder: An empirical investigation in adolescent psychiatric patients	Identify if NSSI occurs without BPD and whether it indicates significant impairment beyond a diagnosis of BPD.	Adolescent psychiatric inpatients, n = 198. Mean age = 15.1, 74% female, 64% Caucasian. Inclusion criteria: No psychosis, aggressive or severe suicide-related behaviours, no intellectual, developmental, or cognitive impairment which would impede understanding.	ISAS, SCID-II, MINI-Kid, DERS, UCLA Loneliness Scale.	Adolescents with NSSI disorder had higher rates of loneliness and emotion dysregulation compared to adolescents without NSSI disorder.	UCLA Loneliness scale
Goodman et al. (2013)	Developmental trajectories to male borderline personality disorder	Identify traits and symptoms of male children who develop BPD through parental survey.	Parents of offspring with and without BPD, n = 263. Mean age = 53.9, 93% female. Inclusion criteria: Male gendered offspring	MSI-BPD	Endorsement of feelings of chronic emptiness had the greatest discrepancies between adult male children with BPD (97%) and adult male children without BPD (8%). By childhood, 41% of males with later BPD experienced emptiness versus 1% of male children without BPD. In adolescence, 59% of males with later BPD endorsed emptiness compared to 4% of males without BPD.	MSI-BPD
Harford et al. (2019)	Borderline personality disorder and violence toward self and others: A national study	Identify BPD criteria which are related to violence towards self and others.	Participants in the NESARC-III study without BPD, with subthreshold BPD and with BPD, n = 36309 (nSubthresholdBPD = 19404, nBPD = 4301). Mean age = 45.5.	NESARC-III suicide attempt and violence questions, AUDADIS-IV	In the total population, symptoms of emptiness, abandonment fear, self-harm, and intense anger all characterised violence towards self (suicide attempts). In the BPD population, the presence of emptiness, self-harm, impulsivity and anger created higher odds for violence towards self and others versus no violence.	AUDADIS-IV

Hauschild et al. (2018)	Behavioural mimicry and loneliness in borderline personality disorder	Determine if behavioural mimicry is altered in BPD compared to healthy controls and if level of mimicry is linked to feelings of loneliness.	Participants with BPD and healthy controls, n = 51 (nBPD = 26, nHC = 25). Mean age = 29.4, 100% female. Inclusion criteria: No left-handedness, no psychosis or BP disorder, no current substance use, history of organic brain disease, brain damage, or neurological illness. No current pregnancy. Healthy controls: No current or lifetime psychiatric diagnoses.	SCID-I, IPDE, BSL, UCLA Loneliness scale, finger-tapping task	Individuals with BPD reported higher levels of loneliness compared to HC. Behavioural mimicry was lowest in individuals with BPD with the highest loneliness scores, suggesting behavioural imitation becomes disengaged or the motivation to engage with others is reduced when people with BPD experience high levels of loneliness.	UCLA Loneliness scale
Hengartner et al. (2014)	Interpersonal functioning deficits in association with DSM-IV personality disorder dimensions	Expand literature on interpersonal function for PD focusing on social functioning.	Swiss individuals representative of general population, n = 511. 55.6% female. Inclusion criteria: Age 20-41.	SCL-27, ADP-IV, SPIKE	BPD was more highly associated with feelings of loneliness compared to other PDs	SPIKE
Hoertel et al. (2014)	Examining sex differences in DSM-IV borderline personality disorder symptom expression using Item Response Theory (IRT)	Identify sex differences for reporting of BPD criteria in a general population sample and BPD subsample using item response theory.	USA individuals participating in second wave of NESARC both with and without BPD, n = 34 481 (nBPD subsample = 1030). General sample mean age = 49, 57.9% female, Caucasian 70.7%. BPD sample mean age = 39.8, 62.5% female, Caucasian 71.7%. Inclusion criteria: Age 18+, no participants outside USA or on active military duty.	AUDADIS-IV	Prevalence of chronic feelings of emptiness was significantly higher in females compared to males in both BPD subsample and general population.	AUDADIS-IV
Horesh et al. (2003)	Comparison of the suicidal behaviour of adolescent inpatients with borderline personality disorder and major depression	Determine if there is a difference in emotional motivation between BPD and MDD recent adolescent suicide attempters.	Adolescents admitted to psychiatric unit meeting diagnosis for BPD or MDD and recent or no prior suicide attempts, n= 65 (nBPD= 33, nMDD= 32). 77% female, 100% Jewish heritage from lower-middle SES. Inclusion criteria: Age 13-18, no substance use disorder, no intellectual, developmental or cognitive impairment which would impede understanding, fluency in Hebrew.	CSPS, BDI, BHS, MAI, OAS, ICS, SIS, SADS, DIB-R	For BPD and MDD groups no differences on scores of depression and hopelessness were found. For recent suicide attempters compared to non-suicidal group hopelessness was higher for recently suicidal adolescents. Depression and hopelessness were associated with suicidal behaviour in both BPD and MDD groups.	DIB, BHS

Hulbert and Thomas (2007)	Public sector group treatment for severe personality disorder: a 12-month follow-up study	Evaluate a treatment program for individuals with BPD with a history of unsuccessful treatments and severe self-harm after 12 months.	Female Anglo-Australian individuals receiving Spectrum Group Treatment who had a diagnosis of PD with a history of unsuccessful mental health treatment and current self-harm, n = 27. Mean age = 34, 100% female. Inclusion criteria: Age 16-64, no acute psychiatric disorders or limited English.	SCID-I, SCID-II, BAI, BDI, BHS, DES, PHI, WCCL, WHOQOL-BREF	Following Spectrum Group Treatment Program, clinically significant gains in reported levels of hopelessness were found.	BHS
James et al. (1995)	Borderline personality disorder: A study in adolescence	Determine presentation and symptom experience of adolescents with BPD compared to psychiatric controls, and identify family predictors.	Adolescents admitted to Oxford Regional Adolescent Unit over two years, n = 48 (nBPD = 24, nControl = 24). Mean age = 14.9, 83% female. Inclusion criteria: No intellectual, developmental or cognitive impairment which would impede understanding.	DIB, chart and case notes, GAS	Adolescents with BPD experienced high levels of boredom and anhedonia which resulted in dysthymia or depressive experiences.	DIB
Javaras et al. (2017)	Functional outcomes in community-based adults with borderline personality disorder	Compare levels of functional impairment between individuals with BPD in clinical treatment programs, individuals with BPD in the community and individuals without BPD.	Probands with and without BPD in general community or clinical treatment programs and their relatives, n = 1127 (nBPD = 225 [clinical = 61, community = 164], nNoBPD = 902), Proband age 18-35, 100% female.	DIPD-IV, DIB-R, BIS	Individuals with BPD in clinical treatment programs were more likely to experience higher levels of social isolation compared to individuals with BPD in the community.	BIS
Johansen et al. (2004)	An investigation of the prototype validity of the borderline DSM-IV construct	Evaluate prototype validity of construct of BPD in DSM-IV.	Individuals engaged in day treatment programs in Norway with PD, n = 930. Mean age = 34.6, 72% female.	SCID-II, MINI, GAF, SCL-90,	Chronic feelings of emptiness had the lowest correlation with other BPD criteria. It also had the weakest correlation with a BPD diagnosis. Individuals who endorsed the emptiness criterion scored significantly higher on measures of depression. One reason for the low correlations may be the absence of an operational definition of emptiness which indicates a need for a definition of the emptiness criterion.	SCID-II

Kerr et al. (2018)	Depression and substance use disorders in the offspring of depressed parents as a function of the parent's borderline personality disorder symptomatology	Identify risk of MDD and substance use disorder in children of psychiatric outpatients with both MDD and BPD features.	Outpatients at Rhode Island Hospital and their children, n = 2923 (nParents = 912, nOffspring = 2011). Parent group mean age = 45.2, 68.3% female, 83.9% Caucasian. Offspring group mean age = 19.6, 51.5% male.	SCID-I, SIDP-IV	Of BPD criteria chronic feelings of emptiness had the highest endorsement among parents at 30% of the sample. Children of parents with chronic emptiness were at significantly higher risk of developing substance use disorders compared to children of parents without feelings of emptiness. Feelings of emptiness reported by the parent predicted offspring substance use even after controlling for other BPD criteria.	SIDP-IV
Klonsky (2008)	What is emptiness? Clarifying the 7th criterion for borderline personality disorder	Define meaning and clinical significance of the BPD criterion chronic feelings of emptiness in a sample of college students.	Study 1 - College students with five or more historical instances of non-suicidal self-injury, n = 45. Mean age = 19.4, 78% female, 89% Caucasian. Study 2 - College students in undergraduate psychology courses, n = 274. Mean age = 19, 53% female, 38% Caucasian, 38% Asian.	Analysis 1: structured interview of affect-states (developed item). Analysis 2: MSI-BPD, YRBS, DASS-21	Study 1: 67% participants reported feeling empty before self-harm behaviours. Correlations were low between affect states of emptiness and boredom. High correlations were found between emptiness and affect states of hopelessness, isolation, and loneliness before and after self-harm. Study 2: Emptiness had a moderate correlation with depression and anxiety. Excluding the suicidal criterion, the criterion of chronic emptiness showed the strongest association with history of suicidal ideation.	MSI-BPD, How often do you feel empty before and after self-injury?
Koons et al. (2001)	Efficacy of dialectical behaviour therapy in women veterans with borderline personality disorder	Compare DBT treatment to treatment as usual.	Outpatient female veterans meeting diagnostic criteria for BPD in treatment for DBT and TAU, n = 20 (nDBT = 10, nTAU = 10). Mean age = 35, 100% female, 75% Caucasian.	SCID-II, SCID-I, PHI, BSI, BHS, BDI, HAM-D, HARS, SAES, DES	Hopelessness improved significantly more in DBT compared to TAU.	BHS
Lenzenweger et al. (2012)	Exploring the interface of neurobehaviourally linked personality dimensions and personality organization in	Examine relationships between psychometric indicators of neurobehavioural and psychodynamic	Individuals with a diagnosis of BPD, n = 92. Mean age = 30.7, 93.5% female	IPDE, SCID-I, IPO, MPQ	Alienation (negative emotionality) was significantly associated with identity diffusion, primitive defences and reality testing.	MPQ

	borderline personality disorder: The Multidimensional Personality Questionnaire and Inventory of Personality Organization	processes in BPD.				
Leppänen et al. (2016)	Association of parasuicidal behaviour to early maladaptive schemas and schema modes in patients with BPD: The Oulu BPD study	Identify if there are specific early maladaptive schemas or schema modes that are linked with parasuicidal behaviour in BPD.	Individuals with BPD and severe symptoms of previous unsuccessful treatment, n = 60. Mean age = 32.4, 85% female. Inclusion criteria: Age 20+, no psychosis, BP or substance use disorder.	BPDSI-IV, SCID-II, SCID-I, YSQ, YAMI	BPD individuals with parasuicidal behaviour demonstrated higher scores on social isolation/alienation schema compared to BPD individuals without parasuicidal behaviour.	SCID-II, YSQ
Liebke et al. (2017)	Loneliness, social networks, and social functioning in borderline personality disorder	Investigate social isolation and social functioning in relation to loneliness in BPD. Identify if loneliness is a unique factor or if it is accounted for by isolation and impaired functioning.	Individuals with BPD and healthy controls recruited by German Research Foundation, n = 80 (BPD = 40, HC = 40). Mean age = 27, 100% female. BPD group inclusion criteria: No psychosis or BP, current substance use, current pregnancy, history of organic brain disease, brain damage or neurological disorder. HC group inclusion criteria: No psychiatric diagnoses.	BSL-23, ZAN-BPD, IPDE, UCLA Loneliness Scale, SNI, SFS, GAF	BPD group reported higher levels of loneliness compared to HC. Individuals with BPD had smaller and less diverse social networks, and poorer social/interpersonal function which were linked to increased loneliness. After controlling for social-cognitive deficits, the BPD group still had higher loneliness scores, suggesting there are other factors which contribute to feelings of loneliness.	UCLA loneliness scale
Marco et al. (2014)	The meaning in life as mediating variable between depression and hopelessness in patients with borderline personality disorder	Analyse the mediating role of meaning in life between depression and hopelessness for people with BPD.	Participants with BPD from mental health services in Spain, n = 80. Mean age = 32.3, 93% female. Inclusion criteria: Age 16-60, no psychosis, no intellectual, developmental or cognitive impairment which would impede understanding.	SCID-I, SCID-II, BDI-II, PIL, BHS.	Meaning in life mediated the relationship between depression and hopelessness. A greater meaning in life was associated with less hopelessness.	BHS
Marco et al. (2015)	Meaning in life and non-suicidal self-injury: A follow-up study with participants with borderline personality disorder	Identify if there is a link between low meaning in life and self-harm in participants with BPD at intake time point. Indicate if	Individuals engaged in outpatient program who met criteria for BPD, n = 80. Mean age= 32, 94% female, 100% Caucasian. Inclusion criteria: Age 16-60, no psychosis, no intellectual, developmental or cognitive impairment which would	SCID I, SCID II, relevant clinical information inventory (developed items for	Individuals scoring low on meaning in life measures at baseline had higher frequency of self-harm and severe levels of depression and hopelessness compared to those with high meaning in life. Over twelve months meaning in life was negatively correlated with self-	SCID II, BHS

		there is a relationship between low meaning in life and depression, hopelessness and self-harm at follow-up. Understand predictors of self-harm frequency over time.	impede understanding, fluent in Spanish.	frequency of self-harm), PIL-10, BHS, BDI-II	harm frequency, hopelessness, and depression.	
Marco et al. (2017)	The buffer role of meaning in life in hopelessness in women with borderline personality disorders	Extend on previous findings in a clinical sample to explore the effect of meaning in life on the relationships between previous suicide attempts and hopelessness.	Individuals engaged in outpatient program for BPD, n = 124. Mean age = 31, 100% female. Inclusion criteria: Age 13-56, no psychosis, no intellectual, developmental or cognitive impairment which would impede understanding, fluent in Spanish.	SCID II, PIL-10, BHS, SRS	Meaning in life moderated the relationship between suicide risk factors (previous attempts) and hopelessness. Higher scores of meaning in life reduced the effect of risk factors on hopelessness.	SCID II, BHS
McGlashan (1987)	Testing DSM-III symptom criteria for schizotypal and borderline personality disorders	Identify which individual symptoms are most discriminating between BPD and SPD.	Individuals in the Chestnut Lodge Follow-Up Study with diagnosis of BPD, SPD or comorbid BPD and SPD, n = 109 (nBPD = 81, nSPD = 10, nBPD+SPD = 18). Inclusion criteria: No psychosis or BP disorder.	DIB	The least discriminating BPD criteria were intolerance of aloneness and anger.	DIB
McQuillan et al. (2005)	Intensive dialectical behaviour therapy for outpatients with borderline personality disorder who are in crisis	Assess modified intensive DBT program on outcomes of hopelessness, depression, and social function.	Outpatients with diagnosis of BPD who identified as being in crisis, n = 127. Mean age = 30.7, 81% female. Inclusion criteria: No psychosis, BP disorder, developmental disorder, substance use disorder or eating disorder.	IPDE, DBI, BHS, SASS	Significant improvements in hopelessness and depression were found after modified intensive DBT treatment.	BHS
Meares et al. (2011)	Is self disturbance the core of borderline personality disorder? An outcome study of borderline personality disorder factors	Determine the core disturbance in BPD which endures over time in relation to Clarkin's three factor model.	Individuals with a BPD diagnosis who received either one year of conversational model (CM) therapy or treatment as usual (TAU), n= 60 (nCM= 29, nTAU= 31). Mean age = 29, 55% female.	WSS, SDS	The constellation of symptoms relating to self (emptiness, identity disturbance, fears of abandonment, interpersonal difficulties) are more chronic than symptoms relating to regulation and may reflect the core problem of BPD. Therapeutic treatment may address these symptoms.	Unspecified

Miller et al. (2018)	A 1-year follow-up study of capacity to love and work: What components of borderline personality disorder most impair interpersonal and vocational functioning?	Examine symptoms of BPD and their influence on psychosocial function over 12 months in a BPD sample.	Patients presenting to mental health services for treatment of personality disorder, n = 199. Mean age = 32.3, 72.9% female.	GAF, SOFAS, WHODAS 2.0, BPD symptom severity (developed)	Severity of chronic emptiness, identity disturbance, mood dysregulation, impulsivity, and self-harm at intake predicted impaired work function at 12 months follow-up. Mediation modelling found a significant relationship between severity of chronic emptiness (intake) and days out of work (follow-up), which was mediated by severity of impulsivity and frequency of self-harm at intake. Chronic feelings of emptiness may underlie and contribute to behavioural symptoms of impulsivity and self-harm.	BPD symptom severity (MSI question)
Miskewicz et al. (2015)	A contingency-oriented approach to understanding borderline personality disorder: Situational triggers and symptoms	Identify proximal symptoms of BPD which trigger symptomology.	Participants with BPD and general population, n = 255 (nBPD = 77, nHC = 178). Mean age = 44, 67.8% female, 60% Caucasian. Inclusion criteria: Age 18-65, no scores below 24 on MMSE, history of violent crimes, current substance use, current psychosis, or actively suicidal participants.	MINI, SIDP-IV, experience sampling method reports	In the BPD sample, presence and severity of BPD symptomology was contingent on situational triggers. Being alone triggered the experiences of all BPD symptoms except self-harm. Further, as severity of BPD increased, so did the intensity of being alone. Increases in symptoms of emptiness, disturbed self-concept, impulsivity, unstable mood, anger, and dissociative experiences were significantly associated with being alone.	emptiness: I felt hollow inside; I had feelings of emptiness
Morgan et al. (2013)	Differences between older and younger adults with borderline personality disorder on clinical presentation and impairment	Compare younger and older individuals with BPD on mood disorder comorbidity, frequency of symptomology, and functionality.	Individuals engaging in outpatient services meeting BPD criteria, n= 143 (nYounger= 97, nOlder= 46), 76% female. Inclusion criteria: Age 18+, no intellectual, developmental or cognitive impairment which would impede understanding, fluent in English.	SIDP-IV, SCID I, SADS, GAF, self-injury questionnaire	Compared to younger adults with BPD, older adults were more likely to endorse chronic emptiness and poorer social functioning than younger adults. Emptiness may be less likely to change over time for individuals with BPD	SIDP-IV
Morton et al. (2012)	Acceptance and commitment therapy group treatment for symptoms of borderline personality	Report on outcomes of pilot study for group ACT intervention for people with BPD	Outpatients meeting four or more criteria for BPD who were engaged with mental health services, n = 41 (nACT = 21, nTAU = 20). Mean age = 34.8, 92.7% female. Inclusion	SCID-I, SCID-II, BEST, DASS, BHS, AAQ, FFMQ, ACS, DERS	Severity of hopelessness improved more significantly in the ACT group compared to TAU group. Emotion regulation and acceptance skills mediated the relationship between the	BHS

	disorder: A public sector pilot study	compared to TAU, and investigate what mediates improvement in BPD symptoms, anxiety, depression, stress, and hopelessness.	criteria: No current psychosis, no violent behaviours, no intellectual, developmental, or cognitive impairment which would impede understanding, no difficulty understanding English.		ACT group treatment and improvements in hopelessness. This suggests developing emotion regulation skills can reduce hopelessness for people with BPD.	
Nicastro et al. (2016)	Psychometric properties of the French borderline symptom list, short form (BSL-23)	Examine psychometric properties of the French version of BSL-23	Outpatients with diagnoses of BPD or ADHD, n = 310 (nBPD = 265, nADHD = 45). BPD sample mean age = 32.2, 90.2% female.	DIGS, SCID-II, BSL-23, DIVA, WURS, BDI-II, BIS, BHS, STAXI	French BSL-23 was highly correlated with severity of hopelessness.	BSL, BHS
Nisenbaum et al. (2010)	Variability and predictors of negative mood intensity in patients with borderline personality disorder and recurrent suicidal behaviour: Multilevel analyses applied to experience sampling methodology	Identify patterns of variability in mood using EMA over 21 days in a sample of BPD individuals and explore if these patterns can be predicted by risk factors associated with suicidal behaviours.	Outpatients with a diagnosis of BPD had engaged in at least two acts of suicidal behaviour with intent to die, with at least one being in previous two years, n = 82. Mean age = 33.5, 82.9% female. Inclusion criteria: Age 18-65	SCID-II, BIS, BDHI, SWLS, BDI-II, BHS, SSI, SBQ, CTQ	Daily mood ratings were dependent on severity of hopelessness throughout day for individuals with BPD.	BHS
Ntshingila et al. (2016)	Experiences of women living with borderline personality disorder	Explore life experiences of women with BPD in South Africa.	Females with BPD in a psychotherapy ward, n = 8. Mean age = 28, 100% female. Inclusion criteria: Age 18-40	Qualitative question - "Tell me your life story"	An emergent theme of life stories among participants was chronic feelings of emptiness in relation to the self. Specifically, the theme chronic emptiness consisted of subthemes of 'distorted self-image' and 'lack of identity'. Participants showed a sense of worthlessness and powerlessness when discussing these themes, and reportedly filled the 'void' of emptiness by engaging in impulsive behaviours.	Themes from qualitative responses

Nurnberg et al. (1986)	Core criteria for diagnosing borderline patients	Examine diagnostic criteria for individuals with BPD and determine the essential features for diagnosis	Inpatients with BPD at a university teaching hospital and healthy controls, n = 37 (nBPD = 17, nHC = 20). BPD group age range 17-35, 59% female. Inclusion criteria: No intellectual, developmental or cognitive impairment which would impede understanding. No substance use disorder, no psychosis, no significant medical illness.	DIB	Compared to HCs, the BPD group was characterised by feelings of chronic emptiness, depressive loneliness, and boredom. Chronic emptiness or loneliness was present in 94% of the BPD group compared to 40% of the HC group. Results suggest chronic emptiness/loneliness, impulsivity, unstable relationships, and acting out behaviours are the most common symptoms among the BPD group.	DIB
Nurnberg et al. (1987)	Efficient diagnosis of borderline personality disorder	Identify essential features of BPD and determine how many of DSM-III criteria are necessary for a diagnosis of BPD.	Inpatients with a diagnosis of BPD and healthy controls, n = 37 (nBPD = 17, nHC = 20). 59.5% female. Inclusion criteria: Age 16-45, no current psychosis, no intellectual, developmental, or cognitive impairment which would impede understanding, no substance use disorder, no significant comorbid mental health disorder (BPD group) or psychiatric history (HC group).	DIB, CCI	Chronic feelings of depressive emptiness, loneliness, and boredom, disturbed interpersonal relations, and impulsive behaviours were the most discriminative criteria for BPD participants.	CCI
Nurnberg et al. (1991)	Hierarchy of DSM-III-R criteria efficiency for the diagnosis of borderline personality disorder	Identify discriminating features of BPD and evaluate diagnostic efficiency of DSM-III criteria.	Outpatients with diagnosis of anxiety disorder or other Axis 1 disorder assessed for BPD, n = 110 (nBPD = 22). Mean age = 35, 55% female. Inclusion criteria: No psychosis, major affective disorder, no impairments which would impede understanding, no substance use disorder, must have completed at least one year of psychological treatment.	Clinical interview, SIDP, DIB	Chronic emptiness, boredom and loneliness was the third most discriminating criteria for BPD diagnosis, following interpersonal difficulties and impulsivity.	DIB
Ohshima (2001)	Borderline personality traits in hysterical neurosis	Compare psychopathology of BPD and hysterical neurosis.	Inpatients and outpatients diagnosed with BPD or hysterical neurosis (dissociative disorder or conversion disorder in DSM-III), n = 88 (nBPD = 48, nHystericalNeurosis = 40). Mean age = 26.1, 67% female. Inclusion criteria: 40 years or younger.	DIB	BPD group showed higher scores of intolerance of aloneness and lower scores of loneliness suggesting both groups experience loneliness but people with BPD find being alone and feeling lonely intolerable.	DIB

Oldham et al. (1996)	Relationship of borderline symptoms to histories of abuse and neglect: A pilot study	Identify whether individuals with BPD who have histories of abuse and neglects can be differentiated from individuals with BPD or other PDs without abuse and neglect.	Patients applying for long-term inpatient treatment for personality disorder, n = 50 (nBPD = 44, nOtherPD = 6).	PDQ-R, Patient history questionnaire	Factor analysis showed abuse history was correlated with chronic emptiness. One subtype of BPD may include a sense of emptiness, relationship instability, and abandonment fears.	PDQ-R
Pérez et al. (2014)	Comparison of clinical and demographic characteristics among borderline personality disorder patients with and without suicidal attempts and non-suicidal self-injury behaviours	Explore demographic, clinical, and symptom differences between groups - Individuals with BPD who (a) have engaged in self-harm attempted suicide, (b) have engaged in self-harm only, and (c) engaged in neither self-harm nor attempted suicide.	Individuals engaged in outpatient services for BPD, n = 85. Mean age = 32, 94% female. Inclusion criteria: Age 13-60, no intellectual, developmental or cognitive impairment which would impede understanding, fluent in Spanish.	Clinical information inventory, self-harm history, suicide attempt history (developed items), SCID I, SCID II, BHS, BDI-II, SRS	The self-harm and suicide attempt group had the higher number of prior suicide attempts among groups and had the highest level of hopelessness. Higher levels of hopelessness are associated with more severe suicide-related behaviours.	SCID II, BHS
Perroud et al. (2013)	Response to psychotherapy in borderline personality disorder and methylation status of the BDNF gene	Compare DNA methylation status of BDNF exons I and IV in BPD subjects to control subjects. Determine if epigenetic processes can be changed by psychological treatment of BPD.	Outpatients with BPD attending intensive DBT program and HC group, n = 167 (nBPD = 115, nHC = 52). Mean age = 35.5, 79% female. Inclusion criteria: No participants with suicidal behaviour, severe impulse dyscontrol or severe anger difficulties.	SCID-II, DIGS, BDI-II, BHS, BIS, CTQ	Following intensive DBT, there was a significant decrease in severity of hopelessness. Changes in methylation status of BDNF was significantly associated with change in hopelessness scores.	BHS
Pinto et al. (1996)	Borderline personality disorder in adolescents: Affective and cognitive features	Determine affective and cognitive symptoms of BPD in adolescents, and identify if depressed adolescents with and	Females admitted to adolescent inpatient unit at psychiatric hospital, n = 40 (nBPD = 19, nNoBPD = 21). Mean age = 14.9, 100% female. Inclusion criteria: Age 13-17 years, no psychosis or delirium, no	DIB-R, DICA-R-A, BDI, RCMAS, STAXI, HSC, LOC, CASQ, PHCSCS	Severity of hopelessness did not distinguish between depressed adolescents with and without BPD, indicating it is not unique to BPD. Depressed adolescents with BPD were distinguishable by poor self-concept,	HSC, DIB-R

		without BPD can be distinguished.	intellectual, developmental or cognitive impairment which would impede understanding, English as first language.		perhaps related to identity disturbance and chronic emptiness.	
Powers et al. (2013)	Symptoms of borderline personality disorder predict interpersonal (but not independent) stressful life events in a community sample of older adults	Examine whether personality pathology predicts dependent and independent stressful life events in older adults.	Community sample engaged in the St Louis Personality and Aging Network Study who had completed baseline and one follow-up, n = 1630. Mean age = 60, 54% female, 69% Caucasian. Inclusion criteria: Age 55-64.	SIDP-IV, LTE-Q, BDI-II	Unstable interpersonal relationships and impulsivity was associated with higher number of stressful life events, and chronic emptiness was associated with less stressful life events.	SIDP-IV
Price et al. (2019)	Subjective emptiness: A clinically significant trans-diagnostic psychopathology construct	Identify core features of emptiness across diagnosis and create a quantitative measure of emptiness.	Sample 1: Undergraduate students, n = 543. Mean age = 20.2, 76.8% female, 44.5% Hispanic/Latino. Sample 2: Adults diagnosed with psychiatric disorders, n = 1067. Mean age = 29.8, 67.1% female, 81.8% Caucasian. Sample 3: Adults diagnosed with psychiatric disorders, n = 1016. Mean age = 27.5, 56.3% female, 81.5% Caucasian. Inclusion criteria: Age 18+, fluent in English.	ZAN-BPD, PIL-SF, BIS-Brief, CES-D 10, SCIM, PID-5-SF, SES	A unidimensional construct of emptiness was found with core features of detachment from self and others, hollowness, aloneness, disconnection, and unfulfillment. The subjective emptiness scale was developed as a transdiagnostic measure of emptiness.	SES
Rebok et al. (2015)	Types of borderline personality disorder (BPD) in patients admitted for suicide-related behaviour	Categorise individuals with BPD into types of BPD, and evaluate characteristics of each type.	Inpatients with BPD who recently engaged in suicidal behaviours, n = 87. Mean age = 35, 100% female. Inclusion criteria: Age 18-65, no intellectual, developmental, or cognitive impairment which would impede understanding, no participants who could not understand Spanish fluently.	Clinical interview, BIS, MADRS	5% of participants were classified as an 'empty' type of BPD - lacking a stable identity or goals and reporting feelings of emptiness. The low frequency of 'empty' type of BPD may reflect the difficulty in defining and assessing emptiness, and the difficulty that people with BPD may experience in understanding the term 'emptiness'	Clinical interview

Richman and Sokolove (1992)	The experience of aloneness, object representation, and evocative memory in borderline and neurotic patients	Test clinical observations of experience of aloneness, object representation, and evocative memory in BPD.	Outpatients with a diagnosis of BPD or neurotic disorders, n= 40 (nBPD= 20, nNeurotic= 20). Inclusion criteria: Age 18-60, no intellectual, developmental or cognitive impairment which would impede understanding, no current substance use.	Spitzer Borderline Scale, Turner Scale, WMS, HSCL-90, Rorschach Developmental Level Scale, EMT, UCLA loneliness scale (modified)	Individuals with BPD demonstrated more pervasive experiences of aloneness and lower memory quotients compared to the neurotic individuals. Memory quotient and experience of aloneness contributed 46% of the variance in predicting membership to BPD or neurotic group. Individuals with BPD experienced aloneness more frequently and more severely than neurotic individuals.	UCLA Loneliness scale
Rippetoe et al. (1986)	Interactions between depression and borderline personality disorder: A pilot study	Assess overlap of symptoms between BPD and affective disorders and identify BPD symptoms associated with Axis I disorders.	Inpatients at psychiatric unit who met three or more criteria for BPD, n = 43. 54% female. Inclusion criteria: No intellectual, developmental or cognitive impairment which would impede understanding, no psychosis.	Patient chart review, DIB	Individuals with comorbid BPD and depression showed more severe chronic emptiness and boredom and more suicide attempts than individuals with BPD only.	DIB
Rogers et al. (1995)	Aspects of depression associated with borderline personality disorder	Examine relationships between BPD and aspects of depression (boredom, emptiness, abandonment fears, self-condemnation, self-destructiveness, cognitive dysfunction, hopelessness, guilty, sense of failure, somatic complaints, and hopelessness).	Inpatients in public psychiatric hospital meeting criteria for depression, BPD or ASPD, n = 50 (nBPD = 16). Mean age = 27, 100% Caucasian. Inclusion criteria: No intellectual, developmental, or cognitive impairment which would impede understanding, no psychosis.	HDRS, DIB, MCMI, SDS, BDI, items from: CRS, clinical psychopharmacology research group scale, HSCL-90, IDS-SR, borderline and antisocial scales from the Personality Interview Questions	BPD groups had significantly higher emptiness and hopelessness compared to both ASPD and depression. Depression associated with BPD is phenomenologically distinct from depression or ASPD, and includes aspects of emptiness and self-condemnation.	MCMI, DIB

Sagan (2017)	The loneliness of personality disorder: a phenomenological study	Investigate and understand the experience of loneliness for people with BPD.	Participants engaged in mental health online networks with a diagnosis of BPD, n = 7, aged 25-61.	Qualitative narrative interview	Compared to samples of participants with other mental health difficulties, participants with BPD viewed loneliness as an inherent trait which is related to an inability to feel connected to the world or other people. Participants with BPD described efforts to foster connection including work or creative pursuits which provided only short-term relief from the feeling of 'un-relatedness'.	Themes from qualitative responses
Sanislow et al. (2000)	Factor analysis of the DSM-III-R borderline personality disorder criteria in psychiatric inpatients	Examine factor structure of BPD in young adult inpatients.	Adult inpatients with BPD at Yale Psychiatric Institute, n = 141. Mean age = 22.4, 53% male, 89% Caucasian. Inclusion criteria: Complete inpatient data available regarding BPD.	PDE	The first of three factors was named 'disturbed relatedness', which comprised unstable relationships, identity disturbance and chronic emptiness. Disturbed relatedness reflects difficulties with relationship to self and others and may comprise the core difficulty of BPD as incomplete sense of self.	PDE
Scheel et al. (2013)	Effects of shame induction in borderline personality disorder	Identify if people with BPD experience stronger and more persistent shame reactions to stimuli compared to participants with MDD and HC.	Inpatients or outpatients with BPD, participants with MDD from Rehabilitation Centre, and HC from community, n = 73 (nBPD = 25, nMDD = 25, nHC = 23). Mean age = 30.5, 100% female.	BDI, TOSCA, ZAN-BPD, developed strength of emotion questions, developed shame-inducing narrative	There was no difference in levels of boredom following shame induction exercise in BPD, MDD or HC groups.	Developed strength of emotion questions
Silk et al. (1995)	Borderline personality disorder symptoms and severity of sexual abuse	Understand the relationship between severity of child sexual abuse experiences and specific BPD symptoms.	Inpatients with BPD, n = 41. Mean age = 29.1, 88% female. Inclusion criteria: No psychosis, organic disorders, no participants who could not understand English fluently.	DIB, FEI, SASSb, HDRS	Sex with a parent during childhood was predictive of feelings of hopelessness and worthlessness for both males and females with BPD. Sex with a parent was predictive of intolerance of being alone for females with BPD.	DIB

Skinstad et al. (1999)	Rorschach responses in Borderline Personality Disorder with alcohol dependence	Examine differences in Rorschach responses between groups with alcohol dependence and; BPD, PDNOS or BPD and another PD.	Male inpatients in alcohol detoxification centre with BPD, PDNOS, or BPD and another PD, n = 43 (nBPD = 19, nPDNOS = 14, nBPD+OPD = 10). Inclusion criteria: No neurological disease, acute stress reaction or primary use of other substances.	Patient charts (behavioural observation, multi-disciplinary assessment), Rorschach test	Both BPD groups showed a response pattern consistent with withdrawing from social interactions and isolation	Rorschach test
Soloff et al. (2002)	Childhood abuse as a risk factor for suicidal behaviour in borderline personality disorder	Determine if childhood abuse is a risk factor for suicide in BPD, and if it is related to other risk factors for suicide in BPD.	Inpatients and outpatients of the Western Psychiatric Institute and clinic, and community members with BPD, n = 61. Mean age = 28.2, 82% female.	IPDE, DIB, SCID-I, abuse history, BHS, BIS, BGA, MMPI-PD.	For people with BPD who experienced childhood sexual abuse, risk of adult suicide was increased by severity of hopelessness	BHS
Soloff et al. (2000)	Characteristics of suicide attempts of patients with major depressive episode and borderline personality disorder: A comparative study	Compare aspects of psychopathology in groups with (a) BPD, (b) MDD, and (c) BPD and MDD to determine what predicts lifetime number of suicide attempts or suicidal behaviours.	Inpatients meeting DSM criteria for MDD, BPD or both diagnoses n = 158 (nBPD= 32, nBPD+MDD= 49, nMDD= 77). Mean age = 32, 65% female, 81% Caucasian. Inclusion criteria: Age 18-83, no psychosis, no other mood disorder.	SCID I, IPDE, SIS, Lethality Scale, , HAM-D, BDI, BHS, BDHI, BIS, MMPI, BGLHA, GAS	Hopelessness, lifetime number of suicide attempts, and history of aggression predicted suicide attempts for BPD group. Across groups, lethal intent in suicide attempt was predicted by hopelessness. In the BPD+MDD group an increase in hopelessness predicted increase in objective suicide planning. Increased levels of hopelessness are predictive of lifetime number of suicide attempts.	IPDE
Southward and Cheavens (2018)	Identifying core deficits in a dimensional model of Borderline Personality Disorder features: A network analysis	Examine network structure of BPD and identify core features of BPD, differences between participants high in BPD features compared to low features, and the differences in structure of BPD between gender.	Participants enrolled in eighteen studies including general population, undergraduate students and participants seeking psychological treatment, n = 4636. Mean age = 22.6, 61.1% female, 74.2% Caucasian. Inclusion criteria: Age 18+.	DERS, IIP, PAI-BOR	Network analysis of BPD features found chronic feelings of emptiness from the Identity Disturbance subscale was the most central node of the network. The node chronic emptiness had a significantly greater strength score that all other nodes except self-harm. Feelings of chronic emptiness were also found to be the most representative item of BPD from the Identity Disturbance subscale of PAI-BOR. In the high BPD features group, loneliness was a central feature of the network.	PAI-BOR

Speranza et al. (2012)	Factor structure of borderline personality disorder symptomatology in adolescents	Explore factor structure of BPD DSM-IV criteria in adolescents.	Inpatients and outpatient adolescents with BPD, n = 107. Mean age = 16.6, 89% female. Inclusion criteria: No schizophrenia, chronic serious medical illnesses, no intellectual, developmental, or cognitive impairment which would impede understanding.	SIDP-IV, K-SADS-PL	Two factor solution included internally and externally oriented criteria. The internal factor included chronic feelings of emptiness, abandonment fears, identity disturbance, paranoid ideation. This factor may reflect the difficulties with experience of self during adolescence for people with BPD.	SIDP-IV
Stanley et al. (2001)	Are suicide attempters who self-mutilate a unique population?	Compare suicidal behaviours for people with BPD who have a history of self-harm and no history of self-harm.	Individuals with cluster B personality disorder who had made at least one suicide attempt, n = 53. Mean age = 30, 79% female, 89% Caucasian. Inclusion criteria: No current substance use, history of head trauma, no intellectual, developmental or cognitive impairment which would impede understanding.	SIS, SADS, SIB, BGLHA, BDHI, HDRD, BHS, BPRS	BPD participants with a history of self-harm showed significantly higher scores of hopelessness and depression compared to BPD participants without self-harm history.	BHS
Stepp et al. (2009)	Interpersonal and emotional experiences of social interactions in borderline personality disorder	Assess quality of social interactions and the related emotional experience for people with BPD compared to people without PD or with another PD.	Outpatients at Western Psychiatric Institute and Clinic with BPD, other PD, or no PD, n = 111 (nBPD = 42, nOtherPD = 46, nNoPD = 23). Mean age - 37.5, 78.4% female, 72.1% Caucasian. Inclusion criteria: Age 21-60, no intellectual, developmental or cognitive impairment which would impede understanding, no illnesses impacting central nervous system.	SCID-I, SCID-II, Social Interaction Diary,	Participants in the BPD group experienced higher levels of emptiness compared to other PD and no PD groups. The BPD group endorsed more severe emptiness during social interactions in relation to romantic partners, family, and friends compared to other groups	SCID-II
Stiglmayr et al. (2005)	Aversive tension in patients with borderline personality disorder: a computer-based controlled field study	Evaluate if participants with BPD report higher, more frequent, more rapid or more long-lasting aversive tension compared to HC.	Inpatients and outpatients with BPD and healthy controls, n = 110 (nBPD = 63, nHC = 40). Mean age = 27.6, 100% female. Inclusion criteria: No diagnosis of schizophrenia or BP disorder, no current substance use disorder.	SCID-II, DIB-R, SCID-I, severity of aversive tension and preceding state	The events 'being alone', 'rejection', and 'failure' accounted for 39% of all events preceding aversive states for the BPD group	Participant self-report of aversive events

Taylor and Reeves (2007)	Structure of borderline personality disorder symptoms in a nonclinical sample	Explore factor structure of BPD criteria in a nonclinical sample.	University students and general population with at least one BPD symptom, n = 82. Mean age = 18.1, 63% female, 68% Caucasian.	SIDP-IV, SCID-II	Endorsing the symptom of chronic emptiness had the highest correlation with a probable diagnosis of BPD. The first factor of analysis was named 'self-other instability' and included chronic emptiness, unstable relationships, identity disturbance, fear of abandonment, and suicidal or self-harm behaviour. This may reflect a pattern where people with BPD try to cope with feelings of emptiness and avoid abandonment by engaging in self-harm or suicidal behaviours. Chronic emptiness may result from instability in identity and relationships.	SCID-II, SIDP-IV
Taylor and Goritsas (1994)	Dimensions of Identity Diffusion	Determine the factor structure of identity diffusion, and understand the relationship between these factors and psychopathology.	Individuals responding to advertisements in local newspaper and University campus, n = 101. Mean age = 29, 64% female, 75% Caucasian. Inclusion: Age 18-65.	Identity Diffusion Interview, SCID II, PDQ-R, STAI (trait only), SCL-90-R	Core identity diffusion was related to a range of personality pathology including BPD, emptiness, and boredom.	SCID II
Thome et al. (2016)	Confidence in facial emotion recognition in borderline personality disorder	Assess how people with BPD judge the intensity of emotions when presented with differing intensities of facial expressions and identify the level of confidence in the judgement.	Participants with BPD and healthy controls, n = 72 (nBPD = 36, nHC = 36). Mean age = 26.7, 100% female. Inclusion criteria: No bipolar or psychosis, substance use, pregnancy, no intellectual, developmental or cognitive impairment which would impede understanding, no psychotropic medication.	IPDE, SCID-I, BSL, BDI, SES, RSQ, Raven Test, UCLA, STAXI, ratings of intensity of emotions and level of confidence in ratings.	In the BPD group, lower confidence in rating happy faces was associated with higher levels of loneliness and higher expectations of social rejection (higher levels of rejection sensitivity).	UCLA Loneliness scale
Trull and Widiger (1991)	The relationship between borderline personality disorder criteria and dysthymia symptoms	Assess the relationship between BPD symptoms and dysthymia symptoms.	Inpatients in psychiatric hospital admitted for aggressive, psychotic or suicidal behaviour, n = 391. Mean age = 37, 42% female, 91% Caucasian. Inclusion criteria: No intellectual, developmental, or cognitive impairment which would impede understanding.	Patient charts (admission history, psychosocial history, symptom checklist).	A strong positive relationship was found between recurrent suicidal behaviour and chronic emptiness or boredom. Significant associations were found between diagnosis of dysthymia and emptiness or boredom, affective instability, suicidal behaviour, and efforts to avoid abandonment.	Presence or absence of chronic emptiness in psychiatric chart

Vardy et al. (2019)	Development and validation of an experience of time alone scale for borderline personality disorder	To investigate the experience of time alone for individuals with BPD and develop a measure that reflects the experience. To then evaluate the developed measure in terms of validity and reliability.	Study 1: Participants diagnosed with BPD attending outpatient treatment, n = 12. Mean age = 36.3, 100% female. Study 2: Participants with BPD and healthy controls, n = 217 (nBPD = 112, nHC = 105). Mean age = 37.5, 88% female. Inclusion criteria: Age 18+, BPD diagnosis (BPD group).	MSI-BPD, HEI-R, AEMS, MGI-5, ETAS	Intolerance of aloneness is a key feature for individuals with BPD. Participants described feelings of helplessness and distress when alone, but also a need to escape from the demands and expectations of others. Being alone and being with others are both dysregulating.	AEMS, HEI-R, ETAS
Verardi et al. (2008)	The personality profile of borderline personality disordered patients using the five-factor model of personality	Analyse the personality profile of people with BPD according to the five factor personality model.	Outpatients referred to specialist treatment program for BPD, n = 52. Mean age = 30.4, 86.5% female	IPDE, BFQ, BDI, BHS	Severity of hopelessness and depression did not correlate with the borderline scale of IPDE, or mediate the relationship between personality and personality disorder.	BHS
Verkes et al. (1998)	Platelet serotonin, monoamine oxidase activity, and [3H] paroxetine binding related to impulsive suicide attempts and borderline personality disorder	Examine the relationship between impulsivity in borderline personality disorder and platelet indicators of central serotonergic function.	Individuals with BPD in emergency department for suicide attempt, with at least one prior additional suicide attempt, n = 144. Mean age = 35.4, 65% female. Inclusion criteria: Age 18+, no intellectual, developmental or cognitive impairment which would impede understanding, no antidepressant use, alcohol and substance dependence, no MDD or BP.	SIS, EASI-III, PDQ-R, blood samples	Chronic emptiness was positively correlated with platelet 5-HT levels. Patients with chronic emptiness, affective instability and identity disturbance comprised the largest proportion of 'grand repeaters' - 4 or more suicide attempts	PDQ-R
Villeneuve and Lemelin (2005)	Open-label study of atypical neuroleptic quetiapine for treatment of borderline personality disorder: Impulsivity as main target	Evaluate safety and efficacy of use of quetiapine for individuals with BPD	Outpatients with a diagnosis of BPD, n = 34. Mean age = 33.7, 73.5% female. Inclusion criteria: Aged 18-60, GAF score of less than 55, no current major depression or substance dependence, no psychosis or BD, no major medical illnesses, no women who were pregnant or of child-bearing age who were not actively taking contraceptives.	DIB-R, UKU, ESRS, BIS, BDHI, BHS, HAM-D, HARS, BPRS, TCI, SAS, GAF	Following 12 weeks of quetiapine, there was no significant reduction in severity of hopelessness.	BHS

Wedig et al. (2013)	Predictors of suicide threats in patients with borderline personality disorder over 16 years of prospective follow-up	Identify predictors of suicide threats in individuals with BPD and other PDs.	Inpatients at McLean Hospital who participated in the McLean Study of Adult Development, n = 290. Mean age = 27, 80% female, 87% Caucasian. Inclusion criteria: Age 18-35, no intellectual, developmental, or cognitive impairment which would impede understanding, no BD or psychosis, fluent in English.	SCID I, DIB-R, DIPD-R, DAS, presence of suicide threat	Feeling hopeless and abandoned and engaging in behaviours of demandingness and manipulation predicted suicide threats.	DIB
Westen et al. (1992)	Quality of depressive experience in borderline personality disorder and major depression: When depression is not just depression	Understand the experience of depression in a sample of individuals with BPD.	Inpatients at University of Michigan Medical Centre meeting criteria for BPD or MDD, n = 47 (nBPD= 33, nMDD= 14). 72% female. Inclusion criteria: No psychosis, no intake of pharmaceutical medicine within a two week period.	DIB-R, RDC, HAM-D, DEQ, Borderline Depression Factor (developed)	BPD groups with and without MDD can be discriminated from MDD groups by the quality of their depressive experiences with a higher rate of emptiness, loneliness, negative affect, self-concept disturbance, fears of abandonment and interpersonal difficulties. Higher severity of feelings of emptiness, dependency, and rejection sensitivity is associated with more severe depression in BPD.	DIB
Yen et al. (2009)	A 5-day dialectical behaviour therapy partial hospital program for women with borderline personality disorder: predictors of outcome from a 3-month follow-up study	Identify improvement and predictors of outcome following 5-day DBT program over three month follow-up.	Individuals with BPD receiving brief partial-hospitalisation DBT, n = 47. 100% female. Inclusion criteria: Age 18-65, no intellectual, developmental or cognitive impairment which would impede understanding, no psychosis or BP, no substance use disorder.	SCID-II.BDI, BHS, DES, STAXI, BSI (GSI subscale), SIQ.	Participants endorsing chronic emptiness showed improvement in psychopathology, dissociation, and depression over the follow-up, while three participants not endorsing emptiness significantly deteriorated. Meeting criteria for chronic emptiness was not associated with depression or hopelessness scores. Emptiness may be targeted by mindfulness skills of DBT and by provision of caring, engaged, and empathetic staff.	SCID-II, BHS
Zanarini et al. (1998a)	The pain of being borderline: Dysphoric states specific to borderline personality disorder	Describe intensity and frequency of dysphoric states for people with BPD.	Inpatients at McLean Hospital meeting criteria for PD, n = 180 (nBPD= 146, nOtherPD= 34). Mean age= 28, ~80% Caucasian. Inclusion criteria: Age 18-35, no intellectual, developmental, or cognitive impairment which would impede understanding, no BD, no psychosis.	SCID II, DIB-R, DIPD-R, DAS	Dysphoric states were experienced at higher severity for individuals in BPD group. Emptiness as a dysphoric affect was experienced very frequently and for a large portion of time for individuals with BPD.	SCID II, DIB

Zanarini et al. (2016)	Fluidity of the subsyndromal phenomenology of borderline personality disorder over 16 years of prospective follow-up	Assess rates of remission and recurrences of symptoms of BPD over 16 years.	Inpatients at McLean Hospital with BPD or other PD, n = 362 (nBPD = 290, nOtherPD = 72). Mean age = 27, 77.1% female, 87% Caucasian. Inclusion criteria: Age 18-35, no intellectual, developmental or cognitive impairment which would impede understanding, no psychosis or BP, fluent in English.	SCID-I, DIB-R, DIPD-R	Chronic hopelessness, loneliness, and emptiness all had low rates of remission and high recurrence over follow-up period. These may be a response to impaired function in relationships and work.	DIB-R, DIPD-R
Zanarini et al. (2007)	The subsyndromal phenomenology of borderline personality disorder: A 10-year follow-up study	Understand time to remission for BPD symptoms over 10 years. Assess duration of symptoms over time.	Inpatients at McLean Hospital meeting criteria for BPD or another PD, n = 362 (nBPD= 290, nOtherPD= 72). Mean age= 27, 77% female, 87% Caucasian. Inclusion criteria: Age 18-35, no intellectual, developmental, or cognitive impairment which would impede understanding, no BD, and no psychosis.	SCID I, DIB-R, DIPD-R	Temperamental symptoms including emptiness and loneliness were slower to remit in BPD compared to acute symptoms. Median time to remission for chronic emptiness took the longest time (8-10 years), suggesting it may represent a more temperamental factor of BPD.	DIB

Note. AAP - Adult Attachment Projective; AAQ – Acceptance and Action Questionnaire; ACS – Affective Control Scale; ACT – Acceptance and Commitment Therapy; ADP-IV – Assessment of DSM-IV Personality Disorders Questionnaire; ADU - Affective Dictionary Ulm; AEMS – Aloneness and Evocative Memory Scale; ASPD - Antisocial Personality Disorder; ASQ – Attachment Style Questionnaire; AUDADIS-IV - NIAAA Alcohol Use Disorder and Associated Disabilities Interview Schedule-IV; BAI – Beck Anxiety Inventory; BDHI - Buss-Durkee Hostility Inventory; BDI - Beck Depression Inventory; BDI-II - Beck Depression Inventory II; BEST - Borderline Evaluation of Severity of Time; BFQ – Big Five Questionnaire; BGA – Brown-Goodwin Lifetime History of Aggression; BGLHA - Brown-Goodwin Assessment for Lifetime History of Aggression; BHS - Beck Hopelessness Scale; BIS - Barratt Impulsiveness Scale; BIS-Brief – Barratt Impulsiveness Scale Brief; BIS – Background Information Schedule; BORRTI – Bell Object Relations and Reality Testing Inventory; BP – Bipolar Disorder; BPD - Borderline Personality Disorder; BPDSI-IV – Borderline Personality Disorder Severity Index; BPI – Borderline Personality Inventory; BPRS – Brief Psychiatric Rating Scale; BSI – Borderline Syndrome Index; BSI - Beck Suicide Ideation Scale; BSI - Brief Symptom Inventory; BSL – Borderline Symptom List; BSL-23 - Borderline Symptom List-23; BSS – Beck Scale for Suicide Ideation; CASQ – Children's Attributional Style Questionnaire; CCI – Combined Criteria Instrument; CES-D 10 – Centre for Epidemiologic Studies Short Depression Scale; CGI - Clinical Global Impression; CGI-M - Clinical Global Impression Modified; COPE – Cope inventory; CRS - Carroll Rating Scale for Depression; CSPS - Child Suicide Potential Scale; CTQ – Childhood Trauma Questionnaire; CTQ-SF - Childhood Trauma Questionnaire Short Form; DAS - Dysfunctional Attitudes Scale, DAS - Dysphoric Affect Scale; DASS-21 - Depression Anxiety Stress Scales; DD - Dissociative Disorder; DEQ - Depressive Experiences Questionnaire; DERS - Difficulties in Emotional Regulation Scale; DES – Dissociative Experiences Scale; DIB - Diagnostic Interview for Borderlines; DIB-R - Diagnostic Interview for Borderlines Revised; DICA-R-A – Revised Diagnostic Interview for Children and Adolescents; DIGS – Diagnostic Interview for Genetic Studies; DIPD-R - Diagnostic Interview for DSM-III-R Personality Disorders; DIVA – Diagnostic Interview for ADHD in Adults; DSQ – Defense Style Questionnaire; DSQ – Depressive Syndrome Questionnaire; EASI-III – Emotionality Activity Sociability Impulsivity Temperament Survey III; EASQ - Extended Attributional Style Questionnaire; EMA – Ecological Momentary Awareness; EMT - Early Memories Test; EPSIS I - European Parasuicide Study Interview Schedule I; ERQ - Emotion Regulation Questionnaire; ESRS – Extrapyramidal Symptom Rating Scale; ETAS – Experience of Time Alone Scale; FAFSI - Forms and Function of Self-Injury Scale; FEI – Familial Experiences Interview; FFMQ – Five Factor Mindfulness Questionnaire; fMRI – Functional Magnetic Resonance Imaging; GAF - Global Assessment of Functioning; GAS - Global Assessment Scale; GHQ – General Health Questionnaire; HAM-D - Hamilton Rating Scale for

Depression; HARS – Hamilton Anxiety Rating Scale; HC – Healthy Control; HDRS - Hamilton Depression Rating Scale; HEI-R – Hurvich Experience Inventory-Revised; HIT - Holtzman Inkblot Technique; HSC – Hopelessness Scale for Children; HSCL-90 - Hopkins Symptom Checklist-90; ICS - Impulsiveness-Control Scale; IDS-SR - Inventory of Depressive Symptomatology Self Report; IIP – Inventory of Interpersonal Problems; IPDE - International Personality Disorder Examination; IPO – Inventory of Personality Organisation; ISAS – Inventory of Statements about Self Injury; IVE – Eysenck Impulsivity Venturesomeness Empathy questionnaire; K-SADS-PL - Schedule for Affective Disorders and Schizophrenia for School Aged Children (6-18 Years) – Lifetime Version; LOC – Locus of Control Scale; LPC-2 – Lifetime Parasuicide Count-2; LTE-Q - List of Threatening Experiences Questionnaire; MADRS – Montgomery-Asberg Depression Rating Scale; MAI - Multidimensional Anger Inventory; MAPI – Millon Adolescent Personality Inventory; MCMI - Millon Clinical Multiaxial Inventory; MDD - Major Depressive Disorder; MHI-5 – Mental Health Inventory 5; MINI - Mini International Neuropsychiatric Interview; MINI-Kid – Mini International Neuropsychiatric Interview for Children and Adolescents; MMPI - Minnesota Multiphasic Personality Inventory; MMPI-PD - Minnesota Multiphasic Personality Inventory Psychopathic deviate subscale; MMSE – Mini Mental State Examination; MOA - Mutality of Autonomy Scale; MOS – Mood Observation Scale; MPQ - Multidimensional Personality Questionnaire; MPQ-BF - Multidimensional Personality Questionnaire Brief Form; MSI-BPD - McLean Screening Instrument for Borderline Personality Disorder; MWT-B – Multiple-Choice Vocabulary Intelligence Test; NESARC – National Epidemiologic Survey on Alcohol and Related Conditions; OAS - Overt Aggression Scale; OMPP - Orbach and Mikulincer Mental Pain Scale; PAI-BOR – Personality Assessment Inventory – Borderline subscale; PBQ-BPD - Personality Beliefs Questionnaire BPD subscale; PCL-R – Psychopathy Checklist Revised; PD - Personality Disorder; PDE – Personality Disorder Examination; PDNOS – Personality Disorder Not Otherwise Specified; PDQ-R - Personality Diagnostic Questionnaire Revised; PHCSCS – Piers-Harris Children's Self-Concept Scale; PHI – Parasuicide Harm Inventory; PID-5 - Personality Inventory for DSM-5; PID-5-SF – Personality Inventory for DSM-5 Short Form; PIL-10 - Purpose in Life-10 Items; PIL-SF – Purpose in Life Short Form; PSI - Parasuicide History Interview; PTSD - Post Traumatic Stress Disorder; RCMAS – Revised Children's Manifest Anxiety Scale; RDC - Research Diagnostic Criteria; RFL – Reasons for Living; RRS – Risk Rescue Scale; RSE - Rosenberg Self-Esteem Scale; RSQ - Response Style Questionnaire; SADS - Schedule for Affective Disorders and Schizophrenia; SADS - Schedule for Affective Disorders and Schizophrenia; SAES – Spielberger Anger Expression Scale; SAS – Social Adjustment Scale; SASS – Social Adaptation Self-Evaluation; SASSb – Sexual Abuse Severity Scale (only need b if SASS above remains); SBQ – Suicidal Behaviours Questionnaire; SCID-CV - Structured Clinical Interview for DSM-IV Axis I Disorders-Clinician Version; SCID-I - Structured Clinical Interview for DSM-IV Axis I; SCID-II - Structured Clinical Interview for DSM-IV Axis II; SCIM – Self-Concept and Identity Measure; SCL-27 – Symptom Checklist 27; SCL-90-R - Symptom Checklist-90-Revised; SDS - Zung Self-Rating Depression Scale; SEQ - Self-Esteem Questionnaire; SES – Subjective Emptiness Scale; SFS – Social Functioning Scale; SHBCL – Rating scale of self-harm behaviours resulting from impulsivity (developed); SIB – Schedule for Interviewing Borderlines; SIDP-IV - Structured Interview for DSM-IV Personality; SIQ – Self-Injury Questionnaire; SIS - Suicide Intent Scale; SNI – Social Network Index; SOFAS – Social and Occupational Functioning Assessment Scale; SPD – Schizotypal Personality Disorder; SPIKE – Structured Psychopathological Interview and Rating of the Social Consequences of Psychological Disturbances for Epidemiology; SPSI-R - Social Problem-Solving Inventory-Revised; SRS - Suicide Risk Scale; SSI - Scale for Suicidal Ideation; STAI - State-Trait Anxiety Inventory; STAXI - State-Trait Anger Expression Inventory; STEPPS – Systems Training for Emotional Predictability and Problem Solving; SWLS – Satisfaction With Life Scale; TAAD – Triage Assessment for Addictive Disorders; TAU – Treatment as Usual; TCI - Temperament and Character Inventory; TOSCA – Test of Self Conscious Affect; TRES – Therapeutic Relationship Evaluation Scales; UCLA Loneliness Scale - University of California Los Angeles Loneliness Scale; UKU – UKU Side Effect Rating Scale; WAI-S - The Working Alliance Inventory-Short Form; WCCL – Ways of Coping Checklist; WHODAS – World Health Organisation Disability Assessment Schedule; WHOQOL-BREF – World Health Organisation Quality of Life Questionnaire; WSS - Westmead Severity Scale; WURA – Wender Utah Rating Scale; YAMI – Young Atkinson Mode Inventory YRBS - Youth Risk Behaviours Survey; YSQ – Young Schema Questionnaire; ZAN-BPD - Zanarini Rating Scale for Borderline Personality Disorder